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Blogging for Collaborative Learning in the Writing Classroom: A Case Study

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ABSTRACT

The primarily qualitative analysis reported in this paper is to investigate how the students, in a student-centered pedagogical focus, perceive their own learning progress in e-peer feedback activities, including the effectiveness of the use of blogs for e-peer responses in an L2 writing class. Thirty-two second year Vietnamese students at a university in Ho Chi Minh City participated in a 15-week writing course. Data collection was from the 20-item questionnaire and eight semi-structured interviews. Results of the study revealed that when students perceived good progression in their writing skills when they got involved in e-peer feedback on the blog and their writing was longer after revisions. In addition, the students highly evaluated the use of blogs for e-peer feedback activities because of its usefulness and effectiveness.

KEYWORDS

E-Peer Feedback, Global and Local Areas, Peer Response, Revision, Writing Quality

1. INTRODUCTION

Today, the role of the CMC to implement e-peer feedback in writing classrooms has become a focus for research. Applying e-peer response activities can empower students in the learning process and make writing classes more collaborative. Working in the technological environment allows students to take more active and autonomous roles when seeking feedback since they can ask questions whenever they wish and take the initiative in discussions (Warschauer et al., 1996). Student conferencing makes discussions more “student-centered”, fosters a sense of communication, encourages a sense of group knowledge, and increases student participation (Warschauer, 2002). Braine (1997), Sullivan and Pratt (1996) assert that putting students to work together in the technological environment can lead to better writing products and more focused quality peer response.

To some extent, literature has argued about students’ preferences and enhancing writing quality based on peer feedback. The first aspect of the debate relates to the preferences among students towards the e-peer responses. It is worth noting the students’ perceptions of e-peer response in order to get the most collaboration in the learning process as the methods that match particular students’ learning style or preferences often work best (Treglia, 2006). According to the “student-centered” approach, students are considered as the central subjects in the teaching/learning process. There should be a high level of agreement from both the instructor and the students to gain effective results

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in the learning. Pedagogically, when the classroom instructor obtains a high degree of agreement from his or her students, he or she will have a better chance of gaining the students' collaboration in the classroom activities; successful teaching will emerge from this. However, it is not an easy phenomenon to investigate. DiGiovanni and Nagaswami (2001) examined students' responses in both electronic and traditional modes of peer review to see whether online peer review could become a viable option to the traditional peer review and found that students preferred face-to-face peer review to online peer review because students felt more comfortable to talk to their peers face to face rather than by computer. Similarly, Tuzi (2004) claimed that the students in the study preferred traditional peer response to e-peer response even though the e-peer response had a greater impact on revision than traditional peer response. Relating to writing quality, Sullivan and Pratt (1996), Pham and Usaha (2013), and Song and Usaha (2009) found that the writing quality did improve in the e-peer response mode from the first to the final drafts. However, Braine (1997), and Braine (2001) found the improvement of writing quality in the traditional classroom was higher than that of the e-peer response class. Furthermore, Matsumura and Hann (2004) found no significant difference in the degree of improvement between the online indirect response and face-to-face response. There should be qualitative investigation to see how the students themselves gauge their own improvement in the learning process. There have been so few studies conducted to explore students' perceptions on the use of e-peer response to investigate whether the tool the instructors/researchers used is favorable to the students. The purposes of this paper are to investigate the students' attitudes on the improvement of the quality of their writing as well as their attitudes toward e-peer feedback.

With regards training the students to conduct e-peer feedback on the blogging environment, Simsek (2010) claims that weblog integrated writing instruction is more effective than in traditional writing instruction as applied in the writing classroom to help enhance students' writing outcomes. It not only helps students improve their writing abilities but also impacts positively their writing content and organization. Also, Arslan and Sahin-Kizil (2010) posit that employing blogs to teaching writing skills is very helpful for the teachers and students because the students are given essential space to develop their creative ideas (Wooda, 2012). Furthermore, Hsu and Lin (2008) assert that in the writing environment of blogs, students felt ease of use and enjoyed their learning processes towards blogging. Also, students participating in blogs were motivated intrinsically to contribute knowledge to others because they enjoyed helping each other. People were eager to share their thoughts and experiences with others. Yet, Hall and Davison (2007) claim that the blog environment encourages positive and productive exchanges in educational settings. Blogs help explicit peer aid in terms of clarifying of the purpose and concepts of the material covered in the module. In addition, the role of blogs creates a sense of community and encourages reflective learning in an educational context.

Specifically, Pham and Usaha (2016) conducted a study with 32 students at a university in Vietnam using the blogs to help students compose their writing, provide e-peer responses on each other's writings, then revise their writing products based on the e-peer responses. The study found that e-peer response activities on the blogs could help students provide more comments on global areas than on local areas. In addition, the student writers enhance their writing revisions and quality. Similarly, Yang (2016) found that students in the experimental group made more local and global revisions on their own and their peers' writing papers as well. Pham and Nguyen (2014) indicated that most of the comments given by e-peer responses were incorporated into revision. The students benefited from the e-peer response activities since they had to evaluate their peer comments before incorporated them into their revisions.

With regard to students' perceptions on employing blogs in the writing classrooms, Fageeh (2011) indicates that the blog is a useful tool to develop students writing proficiency and attitudes. The students have seen the blog as an opportunity to express their ideas in English, writing for many different audiences and enhance interactions among learners. In terms of linguistics, Montero-Fletaa and Pérez-Sabaterb (2010) stated that employing the blog in the writing classroom improve students' use of language and writing fluency.

Earlier research investigated the applications of blogs into pedagogy was vacant in exploring the ultimate goals behind the preferences of using blogs in professions. The aim of enhancing learning outcomes needs to be further investigated. The authors of the current study took the advice of Ward (2004) that, as language teachers, if we want to equip our students with the ability to communicate in the online era, we cannot afford to ignore blogging, or neglect the opportunities that this new medium offers. Like the student portfolio before it, the weblog faces challenges with practicality and security, but ultimately provides an alternative way to teach and assess authentic writing skills. Therefore, the current study was conducted to investigate following research questions.

2. RESEARCH QUESTIONS

1. What are the students' perceptions on the use of e-peer feedback in the writing classroom?
2. To what extent do the students evaluate their writing skills improve during the e-peer feedback activities?

3. METHODOLOGY

3.1 Participants and Setting

Totally, thirty-two students from a university in Ho Chi Minh City, Their English proficiency ranged from 401 to 493 TOEFL PBT test, were conveniently drawn to participate in this study. They were all sophomore and enrolled for an academic writing class to study on how to write a paragraph in English. They students were divided into groups of four do peer feedback on the blogs to help each other improve their writing products. The students wrote their papers at home and uploaded on their blogs to receive feedback from their peers. Their blogging activities were composing academic paragraphs assinged by the teacher and posted them on their blogs. Then other group members, one by one, in turn read and porvided feedback to clarify some mistakes or errors from the written papers. After that the student writers could revise their writing based on the peer feedback.

In every class meeting, the teachers drew peer feedback from the groups randomly and showed on the projector to help students learn how to enhance their feedback skills. For each writing assignment, the students had 4 days for peer feedback and 3 days for revision before submitted to the teacher. Data collection was from the questionnaire and semi-structure interviews of 8 students. Cronbach's Alpha for the questionnaire was .936 and was analyzed by the SPSS software for mean scores.

Semi-structured interviews were used in the present study. Eight students were randomly invited to provide answers in the semi-structured interviews which were implemented after the training to see how the students perceived the effects of the e-peer feedback for L2 writing revisions. The interview questions focused on the effects of peer comments from drafts 1 – 3 for the sake of the focus of the current study. The interviews were tape-recorded and conducted in Vietnamese so that the interviewees would feel at ease to respond to each question. The interview data were translated into English and every effort was made to keep the translation as close to the original as possible. Then the two versions (English and Vietnamese) of the necessary data used for analysis were checked by two senior teachers at the university where the current study took place to obtain agreement on the translation. Revision and modification were made as recommended.

4. FINDINGS

Research Question 1: What are the students' perceptions on the use of e-peer feedback in the writing classroom?

To provide answers to this research question, data from the questionnaire and semi-structured interviews were used to analyze. The criteria for the Likert-type scale ranged from 1 (strongly disagree) to 6 (strongly agree) and was set as following: low evaluation: 1 – 2.66; medium evaluation: 2.67 – 4.33; and high evaluation: 4.34 – 6. Table 1 presents the students' perception of using the blogs for peer feedback in an L2 writing classroom.

Table 1 reports the effects of e-peer response on writing quality, the students posited that posting their writing on the blog for their friends to read and comment made them take more care about their writing quality (mean = 5.16; S.D = .723). Montero-Fletaa and Pérez-Sabaterb (2010) also found that writing for a purpose in blogs for professional development encouraged the students to produce language more fluently. They were also more concerned on correctness which led us to consider blogs as a potential tool for the development of foreign language linguistic skills. This really helped instructors reduce their job when they had to take care of large writing classes (from 32 to 50) because of the current situations in universities in Vietnam. Peer comments via the blog were confirmed to be useful for revision (mean = 5.06; S.D = .564). In other words, students incorporated peer comments in their revisions in order to produce better products. Also, the students agreed that peer response activities via the blog provided them with more spare time to think about their peers' opinions on their writing (mean = 4.69; S.D = .693); the students stated that thanks to peer comments, they could reorganize the ideas in their writing more logically (mean = 4.88; S.D = .871); and their writing quality improved not only the content (mean = 4.91; S.D = .731), but also the vocabulary, structure, grammar, and spellings of their writing (mean = 5.06; S.D = .801) were better after each revision. This suggested that the students considered the comments on both global and local levels as important. One should not dominate the other. Finally, the students preferred their peers commenting on the content and organization of their writing to spellings or grammar, or structure (mean = 4.94; S.D = 1.162). In other words, comments on global issues were preferred by the student writers. These findings correspond with Yang's (2010) that peer response and self-correction activities enable students to monitor, evaluate, and adjust their writing processes in the pursuit of text improvement. Following is the qualitative analysis based on collected data from in-depth and semi-structured interviews.

The data from the semi-structured interviews indicated that writing activities on the blogs helped them learn more about computer literacy. The computer helped them edit their essay and helped them check the grammar and spellings when they had mistakes. In addition, this kind of activities could help them share their ideas to their peers, not to the teacher only as the traditional learning methods.

Table 1. The effects of e-peer feedback for writing quality

No.	Items	Mean	S.D
1	Posting my writing on the blog for my friends to read and comment makes me take more care about my writing quality.	5.16	.72
2	I found that my peers' comments on my blog were very useful for my writing revision.	5.06	.56
3	Peer response activities via the blog provide me with more spare time to think about my peers' opinions on my writing.	4.69	.69
4	Thanks to the peer comments via the blog, I can reorganize the ideas in my writing more logically.	4.88	.87
5	After each revision based on my peers' comments, the content of my writing is much more abundant.	4.91	.73
6	After each revision based on my peers' comments, the vocabulary, structure, grammar, and spellings of my writing improve a lot.	5.06	.8
7	I prefer my peers commenting on the content and organization of my writing to spellings or grammar, or structure meaning.	4.94	1.16

Also, this kind of activities open their mind when they received feedback from their group members, and they could express their meanings to their peer freely compared to face-to-face- feedback. More importantly, this kind of activities could help them improve their writing quality based on their peers' feedback.

I used to write on the blog before. But this is the first time I have written essays based on my own thinking and capability and share with other people. At first, I felt a little embarrassed and shy. However, after the first posting, I found my friends' comments were so helpful for my writing. At that time, I realized that working on blog was good and more convenient...

Firstly, the writing on the blogs was a good way because we could access the Internet and learned more things on it. Secondly, as Kid's saying that it didn't take us a lot of time. We could copy the writing to our computers; we could retype it and post it onto the blog. In general, this way was so exciting rather than focusing on taking notes of what the teachers were saying. That made me sleepy. However, writing on the blog made me awake Hotvit - S₃₁).

Because when we were not face-to-face with friends, we could express all what we wanted to say. But when we were face-to-face, we were afraid that we made our friends unpleasant when we talk [about their mistakes]. But we knew how to use good words to make them happy. In general we knew how to make them not upset. We also praised them. If not, it was so boring.

One student stated thanks to this activity, she learned more knowledge from other websites and improved her writing skills. websites. She also claimed that the Word could help her check grammar and spellings.

Although learning writing via the blog had some disadvantages, but thanks to it, I learned knowledge about websites and the blogs. In addition, when I used the Word Processor to write, it could help me check grammar and spellings, so it was very convenient. Learning via the blogs was interesting and attractive. I didn't feel bored anymore.

Candyvan (S₄) stated that the e-peer response engaged the students to help one another improve their writing quality, "The first advantage is that we all can help one another: my friends can help me and vice versa. Then it will make our writing better". Also, she liked the method of posting her essays on the blog for her group members to provide comments, "I like that method because there are many readers observing it and giving comments on it," and "I really want others to read and comment on my writing after posting so that I can know whether my writing is good or not". Candyvan also stated that "using the blog is very interesting and it is good place to share good information with friends and public on the Internet".

Some students stated that the Internet access helped the students work anywhere without limit of distance. Some students stated that the e-peer response was very useful because it helped group members become more active and closer in the learning process. They could realize their weaknesses in writing so that they could revise to improve it.

I learned a new learning method in this course. That was learning writing by using the blog. It was very useful. Besides, it helped us train our writing skills; it also helped us improve our group working ability. When we worked in a group we could help one another to rewrite our essays. From my friends' comments, I learned many things from them in my group. Especially, there was one person who wrote very well. She often had very interesting ideas. Her knowledge was deep and wide. I learned many useful things from her.

In fact, learning in this way [e-peer response] was very useful because everyone had a chance to be closer to each other. Especially, everyone in the group had to work hard and more active. Although

we were in the same level, we were in the same course; sometimes I felt that my friends were very good. I liked my friends' comments very much because it helped me realize my weaknesses in my writing and I tried to write better my subsequent drafts. I hope that after this course everyone in our class had lots of improvement in writing.

Some students stated that thanks to viewing other's writings, the students could learn experience from peers' writing mistakes; then they could avoid those mistakes on their own essays. Also, they could learn new vocabulary and ideas when read their peers' writing.

Whenever I read my friends' essays, I found the interesting ideas to help improve my writing. In addition, I learned experience from my friends' mistakes to avoid repeating them in my own essays... Some good comments helped my writing become better... I am not worried about my grammar, structure or vocabulary because I often write a draft before posting it on my blog. So, I like my friends to comment on the content.

Some students stated that nobody was perfect, so they received their peers' comments on the blog because those were very good for revising his drafts. Therefore, they really liked to get many comments from their friends.

Since this was the first time, I posted my essay on the blog, so I had to accept that I had mistakes and others did too. Furthermore, nobody is perfect. The important thing is that we are learning for our improvement. We should accept our unavoidable mistakes. And, what our friends commented on the blogs was very good for us. At that time, we knew what our mistakes were and edited those after that. At the same time, we could also comment on our friends' mistakes, so I think it is good. I really liked to get many comments from my friends.

With regards to the students' perceptions on the use of e-peer feedback in the writing classroom, the findings of the present study contradicted those of DiGiovanni and Nagaswami's (2001), and Tuzi's (2004). However, the findings of the current study were consisted with previous studies such as Hsu and Lin's (2008) and Noytim's (2010). Also, the findings were corresponded to Ware (2004) that writing online made students comfortable with their peers in the classroom. Particularly, this study shared the common claim with Halic et al. (2010) that blogging is potential to enhance students' participation in the learning process. As a result, the student writing outcomes would work out. In order words, using blogs to promote students' participation in the classroom was supported by Weigle (2002) that writing is not solely as the product of an individual, but as a social and cultural act when the students post and share their writing online. According to the "student-centered" approach, the students are considered as the central subjects in the teaching/learning process. The current study found that the blog, as one of the CMC tools, was confirmed to be useful for e-peer response activities. Blog is a platform which provides students a collaborative and communicative environment to help and learn from one another. This was supported by Hyland (2002) that writing is as a collaborative activity because writers can benefit from focused response from a variety of sources. The findings of the current study was seen as innovative in the pedagogical context where teacher-centered approach was still dominant because the students found themselves as responsible for their own learning processes.

Research Question 2: To what extent do the students evaluate their writing skills improve during the e-peer feedback activities?

In order to respond to this research question, qualitative data obtained from the semi-structured interviews were analyzed.

Some students confirmed that their writing quality of Draft 3 was much better. At first, she could not know how to make her writing better. But after receiving comments from peers, she could find out some mistakes that she could not make it by herself. In addition, her group members provided many good and useful comments because their purpose was to help one another improve their writing quality. Also, thanks to peer response activities, she could learn from her friends' strong points in order to apply for her writing.

[My essay was] Much better. I felt that my draft was not ok at first. Its ideas were not as perfect as I expected, but I didn't know how to make it better. Then, when my friends commented, I realized my mistakes, and when I provided comments on my friends' essays, I also learned many different ways to apply to my essay.

Latern (S_{10}) confirmed that her Draft 3 was different from Draft 1 in terms of content. She added more ideas during the revision and she found her writing was logical. Kid (S_{11}) and Hellogutbye (S_{28}) stated that their third drafts were more interesting and longer compared with the first drafts, "It improved a lot because it was longer and had more interesting ideas." Baovy (S_{12}) claimed that her writing quality was better and had more academic styles in terms of thesis statement, topic sentences, supporting sentences and concluding sentences. Suimo (S_{16}) stated that her writing quality improved about not only the content, but also the grammar and structures, "I gave just a few examples in Draft 1. In Drafts 2 & 3, I provided more examples. I improved not only about the content but also about grammar and structures."

Kid (S_{11}) stated that he had used the blog before the training, but this was the first time he posted his writing on the blog. At first, he felt embarrassed to show his writing to his friends to provide comments. Later on, he found this method very useful because thanks to it, he found his peer comments really helpful to improve his writing quality. In addition, he stated that he liked his group members because they provided very good comments.

I had known the blog for a long time. However, I was a little embarrassed when posting my essay on the blog. At first, I was afraid that when everyone read my essay; if it was good, no problem; but if it was bad, so embarrassed. However, after a while, I realized that this method was really useful. Thanks to it, I found that my friends' comments help me improve my writing skill much. Thank friends in my group so much. All of you commented on my essay so well. In fact, I didn't have time to write these words to flatter all of you. Although some comments seemed not related to my writing, thanks anyway, thanks so much. There was only one essay left, wish all of you get best achievement. I love you all my friends.

In short, the student writers perceived their writing quality improved in both global and local areas. Also, they found their writing had enough characteristics of thesis statement, topic sentences, controlling ideas, and conclusion. These findings were supported by Berg's (1999) and Stanley's (1992). In addition, they felt satisfied with their writing quality after the e-peer response activities. Also, because of receiving good comments from peers', the students asserted that their writing quality improved in lengths.

The results of the present study indicated that the students themselves found their writing quality improve when applying blog for e-peer response. In other words, the students' writing improved remarkably after receiving peer comments via blogs. In addition, the lengths of the students' essays did increase from the first to the third drafts. The results echoed the conclusions reached by Sullivan and Pratt (1996), Braine (1997; 2001), Ahern & Everett (1994), that the writing quality did improve in the computer-assisted classroom from the first to the final drafts. In addition, the findings of the present study also bolstered the results of Berg's (1999) that training students in how to participate in

peer response had positive effects on revision types and writing outcomes. Montero-Fletaa and Pérez-Sabaterb (2010) found that writing for a purpose in blogs for professional development encouraged the students to produce language more fluently. They were also more concerned on correctness which led us to consider blogs a potential tool for the development of foreign language linguistic skills. Also, Hyland and Hyland's (2006) contention that electronic response through peer response increases student writing outputs, enhances student motivation, provides a nonthreatening environment, makes papers more readily available for sharing, and allows instructors greater opportunity to monitor peer response.

5. CONCLUSION

First, to explore the students' perception on the use of e-peer feedback in the writing classroom, the results of the current study reveal that most of the students obtained a perception that their writing skills enhanced thank to the e-peer feedback activities. Second, in terms of exploring the students' evaluation on the improvement of writing quality, qualitative data showed that training the students on how to blog with academic writing, the students collaborated in the learning writing activities, particular in promoting students in peer response activities in writing classroom. Actually, technology is a social facilitator in order to provide students opportunities for collaboration, group work, and interaction (Liu & Yang, 2005; Oliver & McLoughlin 1998; Beauvois, 1995; Sringam, 2000). This solves the problems found by Nguyen (2004) that group-work practice was still unsatisfactory because of lack of motivation and students' characteristics. Third, in terms of creative writing, the current study changes the situations when Luu (2006) and Tran (2006) claim that the educational system of teaching compositions in Vietnam brought students to learning by rote, no chances for creativeness. Fourth, the findings of the current study confirm that blog, one of the tools of computer-mediated communication, allows students to take more active and autonomous roles in the learning process and fostered the approach of "student-centered" (Warschauer, 2002). Finally, as educators, if we get away from students, they will run away from us; but if we go with them, they will walk with us. No matter what the teachers have used the blog or not, thousands of students have been using it for their own purposes. If we take advantage of this widely used medium and adapt it into our own classrooms, we can get co-operations from students in learning.

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Contributions of Flipped Classroom Method to Student Learning

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ABSTRACT

Educational institutions are striving for new methods for effective teaching. Flipped classroom (FC) method is one of the new trends spreading in higher education and attracting more instructors. This study aims at exploring the factors influencing the adoption of such a method and its benefits and challenges based on students' perceptions. The literature review suggested a few factors like benefits, enjoyment, innovation development, and social influence as major predictors of flipped classroom adoption. Responses from a sample of 200 students from Qatar University supported all predictors except the role of FC benefits in influencing the adoption. The model explained 62.9% of the adoption variance based on the coefficient of determination value. The authors conducted analysis on items and constructs levels to give more insights on the issues covered in this paper.

KEYWORDS

Adoption, Benefits, Enjoyment, Flipped Classroom, Teaching Methods

1. INTRODUCTION

The improvements in information and communication technology (ICT) enabled its convenient and low cost use in education for the purpose of pedagogy development and successful implementation (Harb & Abu-Shanab, 2009). One of the new evolving paradigms in education is flipped classroom. Flipped classroom (FC) is a positive experience for both instructors and students who engage extensively with pedagogy. In short, FC concept enable students to review the material before class time, so instructors use class time for interactive discussions (Rotellar, 2016). It also provide support to students' learning outside classroom time.

FC is a pedagogical model that gained attention in the last few years. It comprises different principles that require learners to get the basic concepts prior to class, so that class time can be used effectively for active learning and effective engagement. In FC, instructors use online videos as a substitute for live frontal teaching. Students are required to watch the videos before class, so lecture time can be used effectively for more interactive, creative, and deep learning activities (Ollermann, Rolf, Greweling & Klaben, 2017). FC is an effective method for assisting students in applying their knowledge and utilizing their skills. Such scheme will have a positive effect on understanding students' capabilities in managing their own learning and creating a sense of empowerment. In addition to that, FC favors active learning over passive one, and motivates students to satisfy a higher-order thinking skills (Arnold-Garza, 2014). The FC method support students psychologically when combining the

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video classes with the live session and discussions, by bridging the weaknesses of traditional didactic teaching strategies.

The successful implementation of FC relies heavily on the commitment of instructors and their engagement with the process. Open communication between students and instructors is essential for developing relevant content and active learning activities. Instructors have the responsibility toward students in importing the content into the course, and then assign learners to complete within appropriate time. Finally, instructors need to facilitate face-to-face discussions. Highly engaged instructors will emphasize the importance of in-class sessions and online material to students, and manage the active learning exercises with active participation in discussions (Rodriguez, 2016).

This study reviewed the literature related to FC method and tried to understand the benefits of such method, the challenges facing its implementation, and other related issues. A research model was built and tested using a sample of 200 responses from students enrolled in Qatar University. Analysis was done on qualitative and quantitative data. The last section depicted our conclusions to give more insights to future research.

2. LITERATURE REVIEW

It is important to bypass our biases when exploring a certain concept. FC is a method that needs huge effort and commitment. Such situation makes it challenging for both instructors and students. In this section, we will explore the literature related to FC to better understand its environment and build a strong method of research. The following sections will describe the method, its benefits, its challenges, and other related issues.

2.1 What is Flipped Classroom?

Flipped classroom (FC) refers to a flipped teaching or inverted learning model, which shifts the ownership of learning to learners instead of teachers. It transforms students from knowledge-receivers to knowledge-producers by integrating technology with curricula in order to explain concepts via visual representations, and engage students in aligned assessment practices (Cohen, 2016; Shu, 2015). Knowledge transmission is delivered via online videos that students view outside the class. Classroom time is for challenging students understanding and thinking by using different active learning forms (Foldnes, 2016). FC is a form of blended learning in which students gain new material prepared by teachers, and then work on assimilating the knowledge through discussion and problem solving. The role of instructor changed from lecturing to coaching. Instructors create videos and ask students to watch, and then students come to class with notes for face-to-face discussions (Zhang, Dang & Amer, 2016).

Flipping the classroom is an instructional technique to optimize the lecture through promoting the interaction between learners and instructors. Inverting the lecture can be accomplished using interactive videos and tutorials viewed outside the class. While inside the class, students finish their homework and assignments. Instructors act as facilitator in the process. They help students and offer clarifications (Obradovich, Canuel & Duffy, 2015). FC allows instructors to engage students toward a more self-directed learning. In addition, it encourages students to use critical thinking, analysis, and synthesis, which will lead to better understanding of the topic. The lecture time can be used primarily for evaluating students' knowledge and then fostering active learning through interactive activities such as quizzes. This method creates a new experience for participants to apply their knowledge in problem-solving sessions. It is also considered an effective way to prepare students for their final summative examination (Gubbiyappa et al., 2016).

The majority of reported research describes a structure and flow of such method into few basic steps. First, students view short online videos about basic concepts of their materials. Second, they answer a set of self-evaluation questions prior to an in depth face-to-face discussions. Face-to-face discussions can be conducted online in other schemes of education. FC enhances active learning

through interactions and communication through class time while shifting contents outside classroom (Koo & Panahi, 2016). Active learning is another name to student-centered learning, which is a broad concept or an umbrella that encompasses: cooperative learning, collaborative learning, problem-based learning, and peer-assisted learning. Active learning is an inverted concept that flips the traditionally conducted lectures, where students use a digital format such as video to view homework and assignments (Zuber, 2016). Such new methods are blended to enhance the teaching/learning process

Bhagat, Chang and Chang (2016) stated that FC captures innovative classroom activities to improve learning. Students can gain better learning achievement. FC is called “student-oriented” approach in which students can watch lectures, stop, and rewind which is not allowed in the traditional classroom. Such process adds convenience to the learning process. FC incorporates some of following principles: 1) the multimedia principle; students learn better by using words and pictures instead of words alone. Videos can be provided because it contains pictures with text along the narration. (2) The modality principle; it is better for students to use narration instead of on-screen text. Providing explanations of problem solving can be implemented using FC. (3) The individual differences principles; FC provides customized learning environment designed in alignment with student-specific competencies and convenience. Such principle better suites students with low-knowledge and performance.

FC facilitates the learning of basic skills and concepts by doing assignments. FC is an active learning method, where it can enhance students’ critical thinking and assessment of concepts to the purpose of accomplishing independent learning (Cohen, 2016). Nine principles are proposed for designing FC (Rotellar, 2016): (1) Allow the students to gain first exposure to material prior to the class. (2) Provide an opportunity for students to prepare the class. (3) Have a mechanism to evaluate students’ understanding. (4) Bridge the gap between in class activities and out-class ones. (5) Provide clearly well-structured and well-defined guidelines. (6) Give students enough time to finish the assignments. (7) Build a solid foundation for “the learning community.” (8) Provide adaptive feedback on both individual-work and group-work. (9) Facilitate the use of familiar and useful technology.

As we mentioned previously, FC is reported in the literature with different names like inverted, blended or cooperated. Inverted classroom objective is the movement from passive learning to accelerated learning. Such style enhances learning at different levels such as synthesis, analysis, and assessment. In general, inverted learning method is divided into two phases: self-directed learning phase and class room-instruction phase. Self-directed learning phase comes first, where factual knowledge is provided to students, where it serves as the foundation for classroom phase. In the second phase, students utilize the previously gained knowledge (Tolks et al., 2016). Blended learning refers essentially to an integration of high technology into different learning formats used in courses, and it is recognized as an effective way to combine computer-mediated instruction with face-to-face instructions in learning scenarios. Blended learning employs different technologies with face-to-face classroom in order to improve the interaction and communication during student-centered activities (Zhang & Xu, 2015).

FC learning model is also called cooperative learning. Cooperative learning means that learning does not come from teachers to students, but from a student to another (a form of peer-teaching). Peer-teaching is more effective than teacher-teaching. This can be done by dividing students into groups in which teachers give cases or problems to each group and all members of a group should work together to solve the problem. Students in the group study the case individually, discuss the materials and cases together, help each other, and finally evaluate the answers to reach the best solution. This makes the learning process more interactive, fun, inspiring, and challenging. Motivating learners to participate in an effective learning process results in promoting creative learning and facilitating learning autonomy (Marsono, 2016).

2.2 Benefits and Strengths of FC

In traditional learning, where material is delivered in class, instructors are present only for providing lower cognitive levels of learning, including knowledge and comprehension. After that, students are left to work on assignments and exercises away from the class, where such activities require higher cognitive levels of analysis, synthesis, creation, and evaluation. Students will also require clarification and additional help. However, in FC, instructors are present and working together with learners to support them in upper cognitive levels of learning where knowledge and skill building are taking place (Davis, 2016).

The popularity of FC comes from the availability of freely obtainable online learning resources, in addition to the development of the online learning environments and tools. Learners can easily access the online learning resources and easily benefit from them, including: instructional videos, personalized learning dashboards, and practice exercises, which empower students to learn according to their own pace, and inside and outside classes. FC is an effective and creative way for absent students to catch up lessons, for struggling students to review difficult topics, and for teachers to provide their high quality lessons in spite of their absence (Doi, 2016).

Nowadays, the teaching model of flipped classes has a focal point in reforming traditional learning. Instructors are proud of their students as they become more independent in their learning, more responsible for their exercises, and more active learners. FC embodies active learning which serves to facilitate students' achievement and learning; students can learn to be more effective in the teaching process with the ability to think critically, thus can enhance their performance and learning attitudes. Class preparation helps students in class interaction and communication with other colleagues and instructors, hence enabling them to manage and control their cognitive skills, which in turn facilitates their learning. Before the class, students can take their time to understand the content and open a room for more peer interaction. This will increase the opportunities for higher-level cognitive abilities, and make students more confident (Hsu, Chen, Chang & Hu, 2016).

Instead of passive traditional lectures, students are able to participate in learner-centered activities. Such lectures are less instructor-centered and include case studies, problem-based learning, group discussions, or conceptual exercises. They can focus on building their knowledge and using active learning strategies in analysis, synthesis, evaluation, and improving the learning outcomes (Gilboy, Heinerichs & Pazzaglia, 2015). The traditional didactic teaching strategies are instructor centered, where students feel detached from the course proceedings and feel that the course is tedious (Tubbs, 2014). Such situation requires more psychological support from instructors and institutions. FC overcomes such situation when adding the discussion live sessions to the content of the course.

The advantages of FC come primarily from addressing the learning needs of individual students. FC enables students to review and get content of all materials at their own pace. If students face any problem in understanding the topics, they can rewind the videos and listen to the material repeatedly as they need until they have a better understanding. Another advantage of FC is the ability of instructors to learn some topics that they have or may not have enough time to cover in traditional lectures. Thus, FC expands the curriculum to new dimensions rather than recognizing it. The in-class advantage of FC is taking into consideration the requirements and needs of students and how to meet them. One of the key advantages of FC during class time is the student-instructor engagement. This is attained because the introduction of content is completed at home, and then the role of instructor is to provide more support to students who may struggle with some problems during lecture time (Moran & Milsom, 2015).

According to Nederveld and Berge's (2014) paper, FC has many benefits that are obvious. Instructors are able to spend lecture's time on applications of higher-level learning. This gives the instructor a better opportunity to detect and correct errors in thinking instead of lower-level thinking tasks. Passive learning in traditional lectures cannot exist in FC. Instructors are able to support effective communication skills and creative problem solving. In other words, students are actively involved in the learning process and less likely to become frustrated because instructors can offer

helps to students as needed, revisit concepts, and provide any feedback. Additionally, instructors present multiple resources for pre-class such as printed materials and videos that support diverse students than most classroom settings. Students can use these resources to gather information and work in best way regardless of differences in their abilities and backgrounds.

2.3 Students' Perceptions of FC

In traditional lectures and before redesigning the classroom, few students asked questions during lectures and others were afraid or hesitant in expressing their opinions. In new reversed lectures, students see the learning methods favorably and feel engaged during class time (Koo & Panahi, 2016). FC is becoming increasingly popular and important because of the perceived benefits in enhancing participation, decreasing educational costs, and promoting active learning. Research reported positive students' feedback about FC. Students feel that they actually learn in class instead of pretending to listen to the traditional lecture. FC gives a good opportunity and great practice to ask questions and engage in lectures; it is perceived as more effective and efficient learning process. Students enjoy FC and they feel they are learning better than traditional ones. Class material can be viewed many times in addition to assignments and quizzes. There are enough days between first viewing of assignments and the deadlines (Hotle & Garrow, 2016).

Some students prefer small group discussions because they reduce the learning anxiety. Students enjoy working on activities using the Internet and related applications, such as Google doc. It enable them to share what they learn instantly with others. Moreover, flipped videos can be used to display the most important topics covered prior to the actual lectures. From the other side, instructors embraced FC because it changes students' behavior and develop their skills. Students participate in classroom discussions actively and more than the traditional environments (Huang & Hong, 2015).

When certain classifications were explored, results showed that successful students preferred the FC design. They showed a positive experience about FC compared to students who were academically unsuccessful (Beatty & Albert, 2016). Successful students characterized their perceptions in relation to FC to be favorable, and showed an inclination to enroll in such scheme. They also admired the discussions and thought they helped students understand the material and increased their interest in it. Finally, the videos allow students to learn the concepts in an interesting way. Overall, FCs had a positive impact on achieving higher grades. According to Koo and Panahi (2016), some students viewed their learning experience positively, while others viewed it negatively. The positive experience showed their satisfaction with the new teaching methods and their engagement in classes. Students appreciated the flexibility and the availability of online videos, and the value of interactive case discussions. Negative experience reported by students viewed that the redesigned lectures were unfavorable according to the greater workload, and the longer time spent on viewing the online videos carefully, in addition to the examinations and quizzes dates relative to the videos due date.

On the other hand, unsuccessful students, who do not want to learn by watching online videos, will not engage in active learning compared to other students who prefer to learn by watching videos. There are many reasons why students do not prefer to learn through live discussions such as language skills, personality, cognitive processing abilities, and speaking and hearing abilities (Beatty & Albert, 2016).

Research reported that students prefer online video with short duration. Such logical conclusion is expected because high quality videos need time to be produced and be attractive to students. The other logical explanation of why students prefer short videos is related to being board more than long face-to-face lectures. Such setup provide enjoyment and convenience to students. Beside the duration, flipped videos should be situated in an authentic context, and presenter's style should be attractive. Effective videos are those that enable the use of the learner's verbal and pictorial cognitive channels simultaneously; known as the principle of multimedia. In addition, PowerPoint presentations should be provided to websites in order to support students' understanding of the topic (Zainuddin & Attaran, 2016).

Long, Logan and Waugh (2016) stated in their paper that students had positive attitudes towards pre-class videos used in flipped classes. Students can easily control their experience when using the online videos. They feel it facilitates their understanding and helps them in finishing quizzes and assignments. They like using the videos and find them more interesting and helpful. From students' perspective, viewing materials using videos is much better than reading texts. Videos are helpful and easy to use and can be a convenient method for learning. Students can take their time in learning from videos, understanding the knowledge covered in the videos, and then completing the quizzes. Students prefer videos developed by course instructors because they allow them to watch the lessons step-by-step and hear the instructor's voice. This makes the videos more engaging and relevant by communicating instructors' views to students.

Students see the FC as a chance to review the lectures several times as they want through accessing the online materials and tools. They also use various e-learning resources available on the web. FC offers the opportunity to students to enrich their learning experience, develop problem-solving skills, and connect theory to practice. Some students have a general view that FC can facilitate communication skills with teachers, and enhance the cooperation and collaboration with their classmates (Al-Zahrani, 2015). Moreover, other students have positive perceptions to flipped classes because of many features as having the possibility of watching and rewinding the online videos, and usability of different computer applications and tools such as PowerPoint slides and other multimedia. Students also can use the class time in order to complete more participative and cooperative activities. The students find this type of classes more valuable, interactive, enthusiastic, and enjoyable. They have positive emotions toward FC; they find the classes more fun, and gain highest scores because of positive emotions (Jeong, Gonzalez-Gomez & Canada-Canada, 2016).

Another study found that for both individual and group learning, flipped classes could raise students' learning intention and interest which lead to better learning outcomes (Huang, Liao, Huang & Chen, 2014). The attitudes of students varied based on their level of learning achievement. Students with higher level of achievement explored various topics since learning process was connected to real life situations, and thus they preferred independent learning. However, students with lower level of achievement said that group-based cooperative method was better than individual learning. In flipped classes that utilize group work, each group is provided with some tasks to be done, and even though some group members have low-achievements, they are able to discuss their problems and difficulties with their partners and they work together to find solutions, which resulted in a higher sense of participation and accomplishment.

2.4 Impact of Flipped Classroom

Student performance is a major objective in education (Abu-Shanab & Al-Tarawneh, 2015). FC promotes active learning through different learning management systems such as white-board applications, voice/video applications, online tutorials, and online homework manager. During lectures, various learning strategies are used to focus on active learning including concept mapping, case analysis, solving comprehensive problems, and small group discussions. FC has a significant positive impact on student performance and passing rates. Based on an experimental study, Lento (2015) proclaimed that both weaker and stronger students performed better in final exams when compared to students in traditional lectures. Students in the experimental group outperformed other students in the control group. In other words, flipped classes improved the performance of students in both the final exam and the course as a whole.

FC has a broader and deeper perspective on learning. Research supported the idea that preparing the material before class helps students prepare questions in order to ask and discuss with group members and instructor. Such scheme may reduce the student's confusion and anxiety. FC has a positive impact on overall performance, including teamwork and communication skills, problem solving skills, self-regulated learning, creativity, and enjoyment.

2.4.1 Team Work and Communication Skills

It is important for flipped learning to utilize group work concepts in class activities. Students in a group can develop quickly when activities are well prepared and designed. The formation of learning groups is designed to include a combination of students from different backgrounds, and therefore different approaches to problem solving. The mix of skills and abilities in groups enables the collaboration among members to generate diverse ideas, which result in a richer learning experience (Simione, Ortiz-Walters, Fullick-Jagiela & Kelly, 2017). FC raises the awareness of students by identifying their roles and responsibilities related to learning; students should be involved in aspects of class negotiation in order to develop social commitment and cohesion to the team. Such settings reinforce the sense of ownership of the course and its results. This approach is known as student-centered approach (Balan, Clark & Restall, 2015).

Working in small groups has positive effect on students. A student can share his ideas with others and he can interact with others whom had never spoken before. Additionally, working in groups employs cooperative learning strategy, which achieves social and academic targets, according to five basic rules: individual and group accountability, group processing, positive independence, effective interaction, and efficient use of social skills. Cooperative learning drives students to play a central role in understanding their classmates better. They can comprehend their opinions, intentions, doubts, and needs, as well as developing their relationships and responsibilities. In other words, cooperative learning is more effective than frontal one in enhancing students' socialization, participation, and commitment to lessons which in turns lead to higher learning outcomes (Langher, Ricci, Proporsi, Glumbic & Caputo, 2016).

2.4.2 Problem Solving Skills

FC allows students to enhance their problem solving skills. Students can study on their own and then work on assignments that they perceived to be challenging in the past. Students can redo all necessary steps in exercises and learn how to solve problems. FC adds to students' confidence in improving their skills and challenging their knowledge (Baytiyeh, 2017; Sivapalan, 2017; Meyers, 2016). On the other hand, and during class time, instructors emphasize the use of topics based on thought-provoking questions and challenged activities that push students to demonstrated their problem-solving and reasoning skills in order to complete their assignments and quizzes. Therefore, students' engagement is improved through the continual feedback with their instructors. This has a positive impact on achieving higher grades in exams afterward compared to traditional methods, in addition to reducing the stress levels in exams because of students' participation and collaboration in classes. The success of FC is translated into enhancing the mastery of information, and higher retention of information (Mehring, 2016).

For active class sessions, students are expected to prepare before class time by watching videos and having important background information. They should work and spend their time with their peers and the instructor using interactive techniques such as discussion, feedback, homework, presentation, and in-class and out-class quizzes. The instructor can benefit from FC in utilizing class time for focusing on important concepts, and let students participate and collaborate in problem-solving exercises. FC encourages a deeper engagement and facilitates wider peer-to-peer exchanges of information and solutions for cases and problems (Scott & Etheridge, 2015).

2.4.3 Self-Regulated Learning

The experience of active learning in FC can improve self-regulated learning which means the ability to set learning goals, plan ways to achieve the pre-determined goals, monitor and evaluate the progress of the process, and finally, modify the plans when necessary. This PAMM model (plan, achieve, monitor and modify) needs more attention from students and instructors to be successful. On the other hand, if the self-regulated learning is not achieved, students will not apply new appropriate learning strategies such as video and face-to-face lectures, and they cannot develop their skills; they

will only get the material from a book and commit to traditional learning (Koo & Panahi, 2016). Some researchers emphasized that all material should be available online, which allows students to take control over their learning process and develop deep understanding of the concepts and assignments required. Students can review slideshows and movies, and work on exercises and assignments (Baytiyeh, 2017; Wang, 2016).

The successful implementation of curriculum through FC demonstrates an efficient use of students' time, and more satisfaction. Students appreciate short videos with narrated animations; people learn better with a combination of text, animation, and narration. Then, students provide feedback and reflect their positive experience with these types of videos. During class-time activity, teachers are able to use the responses and comments of students to guide the class activities and discussions. Classes allow for more learner-specific teaching by concentrating on the learners and their responses (Morgan et al., 2015).

2.4.4 Creativity

In the past, students studied, then memorized, and took exams. Students were not stimulated to develop their skills and ideas. Research showed that students self-efficacy is the major factor influencing their satisfaction in an e-learning environment (Hammouri & Abu-Shanab, 2018). Now, teachers can encourage students and equip them with capabilities to learn independently and autonomously through FC by creating face-to-face discussions. Teachers share their experience and knowledge, communicate with students, apply multiple types of learning activities, allow students to say their opinions in order to create engaged innovative students (Pan, Nyeu & Cheng, 2017).

Creativity is becoming an essential dimension in most fields. Designing courses to encourage students to lean by their own is very important to stimulate their skills and competencies to their limits. It gives students the chance to discover their talents and see how they can implement their ideas (Baytiyeh, 2017). Al-Zahrani (2015) investigated the impact of FC on creativity, which helped students to think differently and generate flexible, applicable and unusual ideas. Learning resources and materials should be provided to students in order to promote the generation, discussion, and evaluation of creative ideas. Additionally, it is very important to focus on in-class activities, which allow students to elaborate on the topics being discussed and facilitate creativity through the interaction and communication with all participants.

2.4.5 Enjoyment

The majority of students can learn much more by letting them design their animations and movies. It is more appealing for them to switch from a boring teaching model to an enjoying one. Students can have a great feeling of achievement and an exciting time spent in the learning process (Baytiyeh, 2017; Meyers, 2016). Several students value creativity, interactivity, and application in flipped classes. They enjoy the class and the intimate settings; some students see the class fun because they don't get much out of just listening to the traditional lecture. Moreover, students can benefit from independent learning at home. Then, they come to class, apply this learning, reflect their experience, and complete exercises (McLean, Attardi, Faden & Goldszmidt, 2016).

In FC, students with lower-achievement prefer to work in groups because they can complete their tasks when interacting with excellent students. The lower-achievement students enjoy working with other group members, which motivates interaction and positive competition between all members regardless of their achievement level. This can improve their learning ability and improve their intentions. From this point, cooperative learning is both meaningful and interesting. When teaching student with diverse abilities, it is appropriate for them to be in FC with group-based method applied (Huang, Liao, Huang, & Chen, 2014).

3. RESEARCH METHOD

This study tried to explore the literature and conclude to the set of variables that influence students' satisfaction and adoption of the method. The literature focused on the benefits of the method, its enjoyment, and convenience. We tried to classify the factors into four major dimensions that influence students' adoption. The first is the method importance, which sums its benefits to students (FCB). The second dimension is the enjoyment aspects of the method (FCE). The third dimension is its contribution to create innovation (FCID). Finally, we hypothesize that the flipped classes improve students' social behavior (FCSI) and their cooperation based on its interaction and participation aspects. Based on this, we depict our propositions in the following model shown in Figure 1.

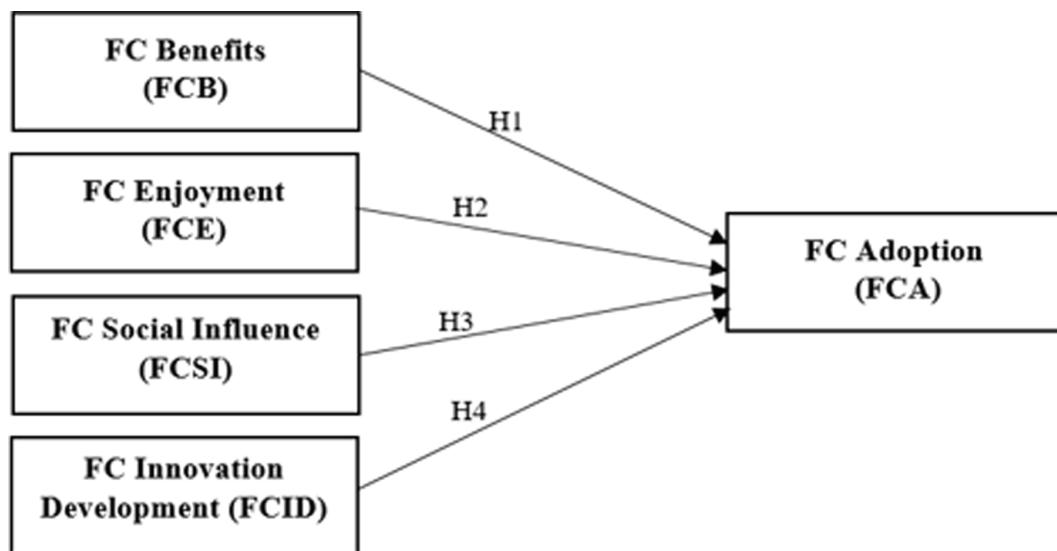
Based on our research model, we assume the following hypotheses:

- H1:** Flipped Classroom benefits will positively influence students' adoption of the method.
H2: Flipped classroom enjoyment will positively influence students' adoption of the method.
H3: Flipped classroom social influence will positively influence students' adoption of the method.
H4: Flipped classroom innovation development will positively influence students' adoption of the method.

3.1 Research Instrument

The first step was to build the instrument to be used for data collection. FC is a new method in education and research related to its influence in Arab world is sporadic. Based on that, a survey including 25 items covering the five variables shown in Figure 1 is developed. Three faculty members who use FCs reviewed the survey instrument, made few comments on some items, and amended the initial survey. The final survey was submitted to Qatar University review board and was approved. The survey included four sections; the first introduced the research project and some guidelines for respondents. The second section described FCs to give students some insights to the details of the method. The third section required students to report their gender, age, and educational level. The

Figure 1. Research model (FC means flipped classrooms)



third section also included two questions related to the FC awareness and its use. The fourth section included 25 items measuring the five dimensions.

The survey items utilized a Likert scale with 5 points; 1 represents a total disagreement and 5 represents a total agreement. The survey included 6 items measuring FC benefits, 5 items measuring FC enjoyment, 6 items measuring FC innovation development, 4 items measuring FC social influence, and 4 items measuring FC adoption. The survey was built in Arabic language and targeted students.

3.2 Sample and Sampling Process

To test the research model, we collected data from students registered in eight classes in the College of Business and economics. Data collection was done on voluntary bases and in class time. We distributed 200 surveys and collected them. Students filled the survey without any reward system (extra credit). The selection of faculty members was also done on voluntary bases. We collected the data from November 26 to December 7, 2017. Collected data was keyed into a spreadsheet application and transferred into SPSS for data analysis. The demographics of data are shown in Table 1.

Table 1. Data demographics

Gender	Freq.	%	Education	Freq.	%
Male	43	21.5	High school	33	16.5
Female	153	76.5	Diploma	27	13.5
Not reported	4	2.0	Bachelor	122	61.0
Total	200	100	Not reported	18	9.0
Awareness	Freq.	%	Total	200	100
Yes	151	75.5			
No	49	24.5	Age	Freq.	%
Experienced	Freq.	%	18-22 years	131	65.5
Yes	99	49.5	22-30 years	63	31.5
No	98	49.0	More than 30 years	6	3.0
Not reported	2	1.0	Total	200	100

The distribution of students in the College of Business and Economics shifts toward more female students (65%) and some earned a diploma and extended their study to bachelor. Their distribution might seem illogical based on students' perception of their status. Some consider themselves a bachelor and some considered themselves earned a high school and pursuing a bachelor degree. Finally, we can see that 75.5% know about FC, but only two thirds experienced it in their classes.

4. DATA ANALYSIS & DISCUSSION

The data collected included a space for students to comment on the method. Among the 200 surveys collected, 44 surveys included comments. Students' comments ranged from few words to a long statement/opinion. The statements also included consistent words (like not suitable to all courses) and diverse statements but represent similar meaning (like useful, beneficial, or good for students.) The data analysis is based on the two directions: the qualitative part and quantitative part.

4.1 Qualitative Data Analysis

The comments collected (from 44 surveys) were decomposed into specific terms by removing the extra wording and cutting redundant content. Some comments included one idea, and the maximum was three ideas. The total number of ideas was 66 and distributed to the following dimensions shown in Tables 2, 3 and 4.

Table 2. Students' perceptions regarding positive side of FC method

Positive comments (total comments = 20)	Freq.
Enables review of material	4
Exciting	2
Useful or successful	3
I recommend it	5
Other: Helps in understanding complex concepts	1

Table 3. Students' perceptions regarding negative side of FC method

Negative comments (total comments = 33)	Freq.
Not suitable for all courses	10
I don't recommend it	5
waste a lot of time	6
Encourage absenteeism	2
Not useful	1
Failed	3
Other: Not practical; Encourages procrastination; Lacks interaction; Shift load from Instructor to students; Distract students; Student performance will go down	6

Table 4. Students' perceptions regarding challenges facing FC method

Challenges and requirements for FC (total comments = 17)	Freq.
Need F2F questions help students understand	8
Other: Needs more examples to support it; Needs to provide exercise files with videos; Give students a choice; Need to review videos again in class; Should use short videos; Needs extensive review; Needs to attend classes; Should use short videos; Videos need clear content.	9

The responses are not distributed based on their negative and positive implication. It looks like QU students did not report positive perceptions and the percentage of comments shifted toward negative perceptions (33 negative vs. 20 positive). The total comments type were 5 positive comments against 13 negative types. Even though some negative comments had only one frequency, still, the major comment was related to the suitability of the method to all courses. The second major qualitative conclusion was related to students' perceptions regarding the requirements and challenges facing FC method. The major drawback to the implementation of method is the need for parallel face-to-face

(F2F) discussion to relate the material offered in the videos and students' questions. Readers can refer to the previous tables for a description of pros, cons, and challenges and requirements.

The last step in qualitative data analysis was to see how the collected terms distribute. We used a cloud tag depiction, which represents a visual representation of the data. The only modification on data was to join terms into camel format (to make each terms as one unit) so they are treated uniquely by the tool. The result is shown in Figure 2.

Figure 2. Cloud tag representing major terms reported in qualitative analysis



4.2 Quantitative Data Analysis

The basic aim of this study is to explore the factors predicting students' adoption of FC method. The model proposed included four predictors and one dependent variable, which requires a multiple regression technique to be used. The data was tested initially using multiple regression and yielded no outliers, which permitted using the total set of surveys for data analysis. The first step included a descriptive test on item level, which included estimating the means and standard deviations of all items. Table 5 depicts such results.

The careful inspection of the means in Table 5 represents an alignment with the qualitative comments analyzed in the previous section. The majority of means are considered moderate (Means between 2.33-3.66), while 5 items only had high means (Means value more than 3.66). The only construct that yielded a high mean was FCB. Students believed that FC is a beneficial method (specifically items Q1, Q2 & Q3). The rest of items were not far from being high. On the other hand, students' responses showed a moderate interest in using the method and adopting it. It is noticeable that the lowest item holds the same meaning of the highest frequency of qualitative comments (FC is not suitable to all types of courses).

The results shown in Table 5 indicates that FC is beneficial and also enjoyable, where FCE included two items with high means and the overall construct was also high (mean = 3.68). The values of all items in each construct showed a consistency, where most items were close in value. Similarly, nearly all standard deviation values were close in value, which indicates a similar dispersion of data around the mean.

We can conclude that students' perceptions regarding the FC method revolved around the excitement and benefits of the method. They could not fully understand the indirect effect of FC on group dynamics and innovative development. The moderate perception level indicates their lower evaluation of the contribution of method. The first dimension is the contribution of FC to innovation development, where students emphasized on all items except the last one a moderate level. They expressed a higher perception regarding the innovative status of method, but moderately expressed

Table 5. Item descriptive analysis

Item short description	N	Mean	Std. Dev.
Q1: Watching prerecorded videos helps me understand the course material	200	3.97	1.186
Q2: Using videos enables me to review lectures many times as needed	200	4.22	1.183
Q3: Using FC reinforce self-dependence skills	199	3.75	1.149
Q4: Using videos helps me enrich my skills and knowledge	200	3.61	1.142
Q5: sing FC enriches the discussion in the classroom	200	3.55	1.173
Q6: FC method enables me to manage and organize study time as wanted	200	3.42	1.387
Total construct – FC Benefit	200	3.751	0.966
Q7: I believe that FC is enjoyable	199	3.26	1.239
Q8: I believe that watching videos reduces students' distraction	200	3.44	1.185
Q9: I believe that watching videos don't waste students' time	199	3.30	1.274
Q10: I prefer watching short video clips than long ones as they are boring	200	4.31	1.082
Q11: It is enjoyable to use more than one teaching method	199	4.10	1.163
Total construct – FC Enjoyment	200	3.680	0.880
Q12: FC helps me think differently	199	3.44	1.103
Q13: FC helps me build more flexible ideas	199	3.47	1.048
Q14: FC helps me build applicable ideas	199	3.43	1.089
Q15: FC helps me build new diverse ideas	198	3.45	1.115
Q16: FC offers a chance to find innovative solutions for my problems	199	3.33	1.155
Q17: FC is an innovative method by itself	199	3.79	1.211
Total construct – FC Innovation development	199	3.485	0.978
Q18: FC helps me cooperate effectively with my colleagues	199	3.28	1.198
Q19: FC helps me stay connected with my instructors	199	3.47	1.109
Q20: FC make communication with my colleagues easier	199	3.21	1.079
Q21: FC helps me work better in teams	199	3.24	1.123
Total construct – FC Social Influence	199	3.298	0.980
Q22: I recommend that all instructors to use FC	200	3.27	1.302
Q23: If I have the choice, I will register more courses that use FC	200	3.21	1.286
Q24: FC method can succeed in all types of courses	200	3.00	1.278
Q25: I will be happy if instructors use FC always.	200	3.16	1.345
Total construct – FC Adoption	200	3.158	1.166

their perception on the sub-factors. The second dimension is worse, where students could not look deeply into the social influence of FC, and reported the lowest levels among all constructs and items.

The internal consistency (reliability) is measured using Cronbach's alpha, which represents a measure of the correlations between items within the same construct. It denotes the consistency in measuring the construct and its recommended value would be above 0.8 (values above 0.9 are considered excellent). Still, an acceptable value exceeding 0.6 would not need any adjustment (Hair et al., 1998). Table 6 indicates high internal reliability of two constructs (FCID & FCA), and two at

Table 6. Cronbach's alpha value of major constructs

Constructs	N	Number of items	Cronbach's alpha
FC benefits (FCB)	199	6	0.893
FC enjoyment (FCE)	197	5	0.793
FC Innovation Development (FCID)	198	6	0.937
FC Social Influence (FCSI)	199	4	0.892
FC Adoption (FCA)	200	4	0.917

Table 7. Pearson's correlation matrix

Construct	FCB	FCE	FCID	FCSI	FCA
FC benefits (FCB)	1				
FC enjoyment (FCE)	.781**	1			
FC Innovation Development (FCID)	.743**	.770**	1		
FC Social Influence (FCSI)	.564**	.570**	.660**	1	
FC Adoption (FCA)	.658**	.735**	.728**	.602**	1

**. Correlation is significant at the 0.01 level (2-tailed).

the recommended levels (FCB & FCSI). The last construct in the model (FCE) yielded an acceptable level, even though it is so close to the recommended threshold (>0.8). Such results support the validity of the instrument used and its consistency when used in further research. Second, the effort done on improving the survey (experts review, and QU review board) resulted in a ready instrument to be used in future research.

Inspecting the correlation matrix indicates strong bivariate correlations between the dependent variable and the predictors (last row in Table 7). Such strong correlations mean that our selection of variables is accurate and is based on a solid conceptual foundation. The highest value among all correlations is the relationship between Benefits and Enjoyment (beta = 0.781). Based on most statistical sources, an issue of multicollinearity might be considered if the correlations are more than 0.85. Furthermore, we can test for multicollinearity through our regression test.

The final step in analysis is to test for the hypotheses assumed. A multiple regression test is used to test the hypotheses. Inspecting the beta values of each predictor is used to test for its hypotheses. The regression test yield an estimate of the joint prediction of all four predictors for the dependent variable. The test is done using an enter method based on our assumed model. Other techniques used in this domain might be suitable for exploratory directions (like stepwise regression). Table 8 shows that the prediction of FC adoption was significant and yielded an $R^2 = 0.621$ (Adjusted $R^2 = 0.613$, $DOF_{4/194}$, $p < 0.001$). The coefficient table is shown below. One of the important components that were jointly estimated is the multicollinearity tests which yielded an acceptable level (VIF around 3, the threshold is more than 10; Tolerance is around 0.3, the threshold less than 0.1)

Results of regression indicated that three variables were significant predictors of the adoption of FC method. It was a surprise that the benefits of FC method was not a determinant of the adoption reason ($p = 0.425$). Our sample of Qatar University students indicated that the strongest predictor of FC adoption (FCA) was the enjoyment factor (FCE, beta = 0.371, $p < 0.001$), followed by the aspect of innovation development (FCID, beta = 0.287, $p < 0.001$), and finally, the social influence factor (FCSI, beta = 0.167, $p < 0.01$). Such results represent the data support for our hypotheses H2, H3 and H4. On the other hand, H1 is rejected.

Table 8. Multiple regression coefficient table

Constructs	Unstandardized Coefficients		Standar-dized Beta	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tol.	VIF
(Constant)	-0.78	0.233		-3.343	0.001		
FC benefits (FCB)	0.073	0.092	0.061	0.799	0.425	0.339	2.952
FC enjoyment (FCE)	0.493	0.105	0.371	4.669	0.000	0.309	3.233
FC Innovation Development (FCID)	0.342	0.095	0.287	3.585	0.000	0.306	3.272
FC Social Influence (FCSI)	0.199	0.071	0.167	2.801	0.006	0.550	1.817

5. CONCLUSION

This study targeted student in a public university in Qatar to investigate their perceptions regarding flipped classrooms (FC) teaching method. The major objective of the study is to realize how to improve students' acceptance of such method (FC Adoption, FCA). All the item means ranged from 3.0 to 4.31 (Moderate and high). The constructs showed a higher perception of the benefits of FC and its enjoyment (High mean for FCB & FCE) (Koo & Panahi, 2016; Meyers, 2016; Baytiyeh, 2017; McLean, Attardi, Faden & Goldszmidt, 2016). Second, means indicated moderate perceptions of FC innovation development (Baytiyeh, 2017; Al-Zahrani, 2015; Pan, Nyeu, & Cheng, 2017). Third, similar to FCID, social influence yielded moderate means (Balan, Clark & Restall, 2015; Al-Zahrani, 2015; Shu, 2015; Huang, Liao, Huang, & Chen, 2014). We can conclude that students realized the direct characteristics of FC (its benefits and enjoyment) and could not realize its innovation development and social influence (FCID & FCSI) (Bhagat, Chang, & Chang, 2016; Moran & Milsom, 2014; Nederveld & Berge, 2014; Scott & Etheridge, 2015).

The research model assumed a direct influence of four predictors on FCA and they are FC benefits, FC enjoyment, FC innovation development, and FC social influence. We printed 200 surveys and distributed them in eight sections in Qatar University. The bases for such distribution was on voluntary bases (sections and students as well). Results supported our research model and yielded a high coefficient of determination ($R^2 = 0.621$), which explains 62.1% of the variance in FC adoption. The results of regression test supported the influence of all predictors except the influence FC benefits.

5.1 Implications

The hype associated with FC method needs to be verified through more empirical research. The first impression toward such method is its innovativeness in utilizing class time and the emphasis placed on interaction and discussion. Such image is associated with huge benefits and enjoyment. This study empirically tested the four dimensions and found a moderate perception towards the social and innovative side of method. Still, students emphasized its benefits and enjoyment. When testing joint association, our results indicated insignificant influence of benefits on adoption. It is important to replicate this study to explore the relationship rejected and test for multicollinearity based on the support of the bivariate relationship. The test of multicollinearity (even though we have all its indicators within required limits (Tolerance, VIF, and bivariate correlations)) might have yielded misleading results and our sample perceptions mixed benefits with other factors and caused for such factor to be insignificant.

The traditional teaching methods are challenged now based on what we face with respect to the lockdown and the isolation forced by governments as a result of Corona Virus (COVID-19) issue. Didactic methods are difficult to apply now with face-to-face settings. Institutions and faculty members are required to support their students while staying at their homes and taking courses in an online

settings. Such situation (even after the Corona virus era) will put pressure on universities and all educational institutions to build more interactive sessions and revitalize the traditional instructional methods. FC can bridge the gap of this psychological deficiency and provide an opportunity for those who adopt a dialectic approach. Such implication is important to keep students attached to their course, institution, and learning journey.

To utilize FC method in education, universities need train faculty members on the method and raise awareness on its benefits and rewards. The qualitative comments indicates many false perceptions by students which indicates issues like wrong implementation, unrealized benefits, and a hype use regardless of its suitability. It is our role to customize education according to course type, student's preferences and educational context. Such issue raise many concerns on the use of this method and how/where/when/why it is implemented.

5.2 Limitations of The Study

This study built a new survey and used it to collect data. Even though the reliability measure used (i.e. Cronbach's alpha) returned excellent and recommended values, it is still a new instrument and needs further validation. The process of building the survey followed all rigor measures, based on the request of review board in QU, still, a reliable instrument will benefit from more replication.

The second research limitation is the small sample size used. The voluntary nature of study and the small sections sizes in QU did not provide better chances to collect a larger sample. A future project might give chances for such. A motivation of extra credit might increase the motivation of students to participate and increase sample size. A follow-up study might compare results and validate the instrument and research model. In addition, future studies might contrast FC method with massive online open courses methods (MOOCs) where many universities are opening their material to the public (Abu-Shanab & Musleh, 2018).

Our study exposed that many faculty members and students do not know FC method, which makes this study exploratory in nature. More research need to focus on other factors influencing the adoption of the method by students and faculty members. The authoritative nature of relationship between faculty members and students dictates the use of such method, which emphasizes the importance of a faculty member sample and research model. Using this method might put enormous challenges on faculty members. The qualitative comments indicated a failure of method (when used by some faculty members), and a careful implementation of it. You do not need students to feel that faculty members are shifting the load from their side to students' side (based on qualitative comments).

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Customer Switching Behavior Towards Mobile Number Portability: A Study of Mobile Users in India

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ABSTRACT

The telecom services have been an imperative means for socio-economic development of a country and a large contributor to the rapid growth and modernization of various sectors of the economy. In recent years, the mobile services are having enormous growth due to rapid changes in technology. The mobile users have the choice to switch from one telecom operator to another within the telecom circle without the change of phone number. The introduction to MNP promoted more competition in the telecom sector and forced service providers to improve service quality and reduce prices. Therefore, it is necessary to understand the factors influencing customer switching behaviour for using mobile number portability. The study identified that the respondents are not only aware of MNP but also know the procedure of using MNP. The results show that service payout, trustworthiness, responsiveness, and monetary value have a positive influence on customers to switch over other service providers whereas accessibility and technology do not have a positive influence on customer switching behaviour.

KEYWORDS

Accessibility, Consumer Behaviour, Mobile Number Portability (MNP), Monetary Value, Responsiveness, Service Payout, Service Provider, Technology, Trustworthiness

INTRODUCTION

Telecommunication network has been playing a phenomenal role in the development of the business. It is an essential component of economic infrastructure. The application of modern marketing principles in the telecom media pave the way for the generation of profits and would certainly make these telecom services quite affordable to the customers at large. In today's dynamic and competitive environment, customers have numerous choices to make the decision on the products and services to use. In the wireless communications industry, the introduction of mobile number portability (MNP) may induce more and more customers to switch their network operator, as MNP allows customers to retain their original telephone number when switching from one carrier to another. This might have a significant effect on price competition and market share of network providers (Shi, Chiang, & Rhee, 2006).

Rapid development in Indian telecommunications services has prompted major global manufacturers of telecommunications equipment to mull over investing in India, paving the way for the extensive provision of modern communication services in rural areas. But the growth has not been exponential in the quality of service offered or openness of business. Customers are not satisfied with the mobile operators' services and schemes. Traditionally, customers had to give up their mobile number on changing service providers. As a result, they are faced with extreme inconvenience by

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having to inform every person about the change in their number. Besides, there is the likelihood of important calls from persons who didn't have the new number being missed out and so on.

Telecommunication sector is one of the technologically developed sectors of the Indian economy, as reported by the Telecom Regulatory Authority of India (TRAI). The scenario has now changed considerably with the introduction of mobile number portability (MNP). The Telecommunication Mobile Number Portability (Sixth Amendment) Regulations, 2015 were issued for facilitating inter-service area mobile number portability (Full Mobile Number Portability) in the country. In the mobile communication sector, which has oligopoly characteristics, MNP has increased the competition, protected the customers, allowed them to switch the service provider easier than ever before, and decreased the cost of changing the provider. In the early stages of market escalation, the emphasis was on acquiring new subscribers but now as the market has advanced and the importance of retaining existing customers has increased drastically. Indeed, acquiring new customers is more difficult and expensive than retaining existing customers (Saeed, Hussain, & Riaz, 2011).

Switching has become a common practice among mobile users. To control the customers from switching, mobile service providers are increasingly relying on contracts that would lock-in customers for a definite time period, but with changing competitive dynamics, contracts are not being favoured by many users (Braff & Laogue, 2004). Therefore, it has become essential to understand the fundamental drivers of customers' switching behaviour in the context of mobile services. The present study aims to study customer behaviour towards mobile number portability services. To know the customers' willingness to change their current mobile service provider when they are permitted to retain the current mobile number, and also factors influencing customers to change their service providers.

MOBILE NUMBER PORTABILITY

Mobile Number Portability (MNP) enables customers to retain their mobile numbers while changing service providers, service types and/or locations. The Internet Engineering Task Force (IETF) has referred number portability as service provider portability that enables a customer to retain the existing mobile number while changing from one service provider to another in the same area; location portability enables a customer to retain existing mobile number without impairment of quality, convenience or reliability while shifting from one geographic location to another; and service portability enables a customer to retain existing mobile number without impairment of quality, convenience or reliability when switching from one service technology to another service technology.

Globally among the major countries, Singapore was the first to implement mobile number portability during the year 1997, followed by Hong Kong in 1999, Spain in 2000, Australia in 2001, Germany in 2002, the US and France in 2003, South Korea in 2004, Taiwan in 2005, Japan in 2006 and Canada in 2007. Further, in 2008 MNP was introduced in the countries Mexico, Malaysia, Brazil, Romania and Turkey. During 2006, Telecom Regularity Authority of India (TRAI) issued draft regulations to facilitate mobile number portability in India and submitted its recommendations to the Department of Telecommunication (DoT) which recommended service provider number portability including service portability (portability between GSM and CDMA) for all mobile service operators.

MNP was launched in Haryana service area during 2010 on a pilot basis and the same was extended in the entire country in 2011. Initially, the MNP facility was available within the Licensed Service Area (LAS) only. However, in accordance with the provisions contained in the National Telecom Policy-2012 regarding "One Nation - Full Mobile Number Portability", MNP was fully implemented during 2015. The New Telecom Policy-2012 (NTP) aimed to eliminate roaming charges across the country and facilitate nationwide (inner-circle) Mobile Number Portability i.e., one-nation-one-number with free-roaming. This allowed the users to change the operator without changing their mobile number even if they move from one circle to another. MNP in India leads to better quality services and a change in the attitude of the operators towards addressing grievances to retain subscribers.

Mobile Number Portability will attract a lot of competition and make the government hike the prices for different series they offer to the telecom companies. It also invites new opportunities for investment in different sectors especially technological sectors by the companies. According to Hui (2009), MNP might theoretically reduce the market growth and social welfare when the market scale is substantially increasing, but it might increase the social welfare when the growing speed is not so high, or the market is almost at its maturity. Though awareness regarding MNP can assist customers in making appropriate decisions regarding switching the service provider, customers shall also consider economic, relational, technical, and functional factors before deciding in favour of switching the current network operator.

REVIEW OF LITERATURE

The phenomenal growth of mobile services in India has given the Indian telecommunication sector lofty visibility in the media. Mobile Number Portability, in particular, has received enormous media attention. However, not many formal studies have been undertaken on issues related to the Indian telecommunications sector. Therefore, the present study articulates the literature related to customer behaviour towards mobile number portability.

Miao, Jia, Tingting, Fangping, & Haibo (2016) proposed a structural equation model on factors influencing customers MNP intention. The factors identified include competitive attraction, subjective norm, and policy perception, customer satisfaction, switching barriers, network quality, awareness rates, perceived service quality, usage habits and switching cost. The study found that customers with different perceive levels in MNP policies have significant differences in switching intention. Kapoor (2009) reported that business subscribers mostly from the postpaid category are more likely to shift their service providers' mechanism. The study revealed that the satisfaction scores on network quality dropped for almost all operators like Airtel, BSNL and Reliance registering the greatest drops. Further, loyalty to operators is seen to be higher among lower socio-economic groups, older age groups, and among females. Zhu, Dai, & Lv (2011) built a Nash - Bertrand price model of China's telecom operators and the study found that the number portability policy can reduce the telecom customers' switching costs, then reduce the operating profit of telecom operators; at the same time can reduce the market share of dominant operator, increase the intensity of competition among telecom operators. Wu Pingyao (2010) examined the main factors affecting preference include customer satisfaction and obstacles. The results of the study reveal that competition attraction has a significant negative influence on the preferences through obstacles.

Mehta (2014) argued that though there is a very high level of awareness, there is no much response in terms of increasing the intention to switch service providers. The study found that the main reasons to switch were related to better features offered by competitors, no new schemes/plans or up-gradation of existing plan, costly value-added services, improper customer service, high call rates, high internet charges, poor network coverage, high SMS charges, frequent network problems, voice quality issues, and hidden charges. Further, the main reasons for not switching were related to satisfaction with the current service provider, brand loyalty, no added benefits, and same service quality across service providers and same user group plan across service providers. Debnath & Shankar (2008) identified different parameters for mobile service providers in India for benchmarking of the service providers and categorized them into various input and output parameters contributing towards the number of subscribers for different service providers. The study examined differences between the number of subscribers and the performance of the service providers. The results of the study revealed that benchmarking of the service providers would depend on the efficiency and quality of service. Qiang (2012) argues that the pre-process factors influencing inclination by influencing portability cost. In the research model, the pre-process factor includes product quality, the diversity of services, the quality of services, the influence of the company, expenses, subjective norm, incentives and customer input. Portability costs mainly include the portability cost of the program, the portability cost of financial

affairs and the portability cost of relations. Further, the research shows that sensitivity of number portability policy has a significant positive influence on inclination.

Viard (2007) study determined whether switching costs make markets more or less competitive by analyzing the case of toll-free number portability. The results of the study show that portability had no significant effect on prices for toll services, which were always portable. Further, found that the service providers reduced their prices when switching costs declined. Shin & Kim (2007) identified that the factors influencing the inclination include customer satisfaction and obstacles, and obstacles have a greater influence on the inclination. The factor of customer satisfaction consists of expenses and service quality and the factor of obstacles consists of portability cost and customer binding. Further, obstacles can adjust the influence of customer satisfaction on inclination. Simon, Benjamin, & Anthony (2014) examined the influence of number portability policy on mobile customers' preference to change their mobile service provider. The research found that the factors influencing customer behaviour include the attitude of switching, the perception of portability cost and self-efficacy. Chuang (2011) believes that customers of Taiwan mobile communications companies are much influenced by customer habit when it comes to preference. When there is no difference in terms of customer satisfaction and portability cost, customers will continue to choose services from their current mobile phone service provider instead of changing to another one.

Akihiro (2010) study to estimate switching costs involved in changing mobile service providers found that government policy related to SIM locks does not exist. This type of policy can improve the portability of the mobile phone handset. It can also reduce switching costs incurred by mobile users while changing network providers as market competition can be boosted up. Motwani (2016) explores the impact of MNP on various mobile network service providers. The study identified that those who provide superior service in terms of the network, call rate, low call drops etc will surely gain the customer and maximum customers will switch over to their network. The result of the study reveals that there is no significant difference between the number of subscribers joins and leaves among the various service providers. Leng (2016) examined customer preference and their willingness to pay for MNP. The research model was adopted from the technology acceptance model and the customer preference is estimated from the conjoint analysis. The results of the study illustrate that all alternatives are significant, while the porting time is the most essential factor, compared to the porting fee and porting process.

Badgujjar & Purewal (2014) study focused on the perception of mobile phone service users towards Mobile Number Portability problems faced during MNP services. The results of the study show that there is no significant difference between the customers' perception of the possession of mobile connections and satisfaction with mobile connections. Further, there is no significant difference among the customers' perception of the problem during mobile number portability. Kaur & Sambyal (2016) identified that customers' switching intentions have not changed, as they appear to be satisfied with the services of their current service provider and with regard to those who have already switched, they switched without MNP. The factors such as service quality, relational quality (i.e., satisfaction, trust, and commitment), price, reputation and image, attitude towards switching, perceived ease of use and usefulness and switching costs significantly affect customers' switching intentions. Durukan, Bozaci, & Dogan (2011) analysed the relationship between awareness of MNP and customers' switching intentions on the basis of benefits, costs, quality, recent developments, and discounts, but revealed that there was no relationship between 'awareness of MNP' and 'customers' switching intentions'. Rahman, Haque, & Ahmad (2011) determined the factors (SQ, call rate, and brand image) of customers' perception towards an operator and suggested that price and SQ were more important factors influencing customers' choice of the service provider than brand image.

Debnath & Datta (2016) investigated the perception and satisfaction level of the customers and different strategies of network service providers towards MNP service. The study indicates that age and gender show no difference between the perception and satisfaction level of the customers towards mobile number portability. Further, the telecom companies like Airtel, Idea, Vodafone, Reliance,

BSNL and Aircel are facing stagnant competition and co-operate with each other under the regulated policies of the government of India. Vibhuti & Tyagi (2013) assessed the awareness of customers towards Mobile Number Portability and identified the factors affecting the switching intention of customers. The study revealed that there is a significant relation between user awareness and their switching intention. There is a significant impact of perceived services quality and experience of the subscriber with the switching behaviour of the user. Further, there is no significant impact on group behaviour on the switching intention of the subscriber. Kim, Park, & Jeong (2004) analyzed the adjustment effect of the switching barrier on customer satisfaction and customer loyalty. The study identified the factors with a significant impact on customer satisfaction appeared to be call quality, value-added services, and customer support. The factors significantly affecting the switching barrier appeared to be switching costs such as loss cost, move-in cost, and interpersonal relationships. Further, the switching barrier was revealed to have an adjustment effect on customer satisfaction and customer loyalty.

Akeke & Ajayi (2018) evaluated the relationship between socioeconomic factors and intention to port among mobile phone users in public universities in Nigeria. The study empirically concluded that due to the influence of socioeconomic factors, the determinants of the MNP were not a unified construct but rather one with both positive and negative switching barriers. The demographic factors such as gender and age have a negative influence on intention to port while economic factors of individual respondents such as income and expenditure exert a positive influence on intention to port. Khaliq, Mahmood, Malik, Jan, & Zameer (2017) study indicated that infrastructural services, customer relationships, call quality and promotional packages were the most important factors affecting MNP. The price of services was found less important factor in the selection of telecommunication service providers. Further, pre-paid and post-paid customers can be significantly different for many value-added services and promotional tools. Olajide (2018) investigated the factors influencing customers' intentions to port mobile numbers. The results confirmed that the effects of service quality, customer satisfaction, switching costs and attractiveness of the alternatives on porting intention. The demographic effects were also found, with age and occupation influencing subscribers' intentions to port.

Thus, it can be understood that it is essential to know the level of satisfaction perceived by the customers towards the services provided by the telecom companies. There are certain reasons due to which the customers' switch from one service provider to another service provider. It is imperative for the service providers to identify the various factors influencing the customers switching behaviour and their satisfaction on the services provided by them. Hence, the present study focuses on examining the various dimensions affecting the customers switching behaviour.

OBJECTIVES OF THE STUDY

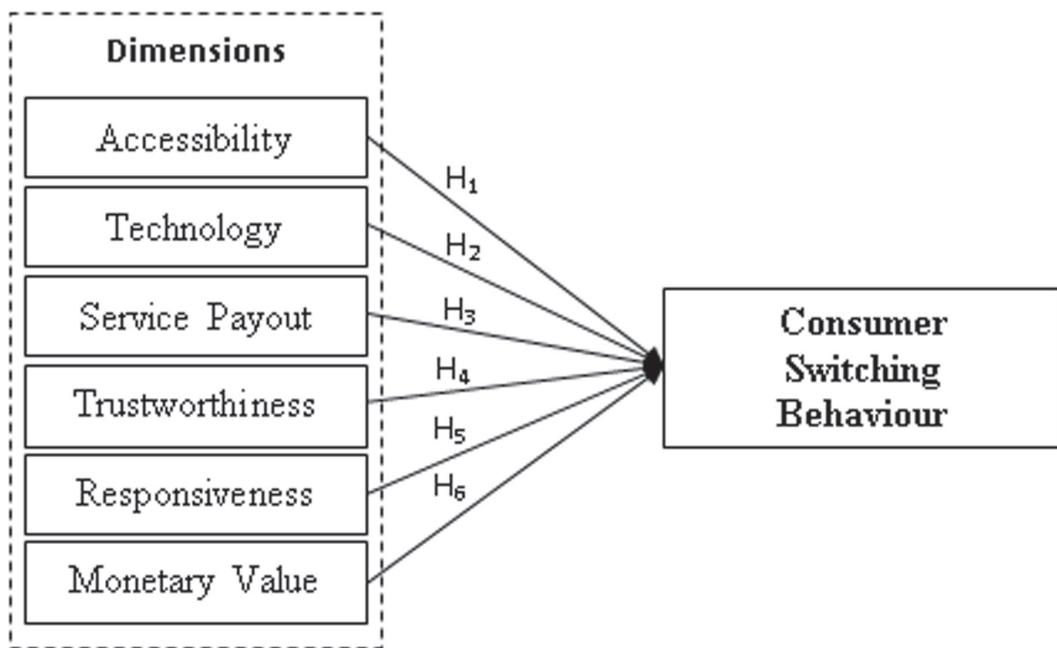
The main objective of the study is to identify the various switching dimensions and the customers' satisfaction towards MNP service providers. Further analysed the influence of these dimension on customers' mobile number portability (MNP) switching behaviour.

RESEARCH HYPOTHESES AND MODEL

To examine the customers' switching behaviour, a conceptual model with six dimensions is developed in the study based on the literature. The six switching dimensions include accessibility, technology, service payout, trustworthiness, responsiveness, monetary value. The conceptual model of customer switching behaviour is shown in figure 1.

To test the influence of switching dimensions on customer switching behaviour the following research hypotheses are developed.

Figure 1. A conceptual model of customer switching behaviour



H₁: Accessibility has a positive influence on customer switching behaviour.

H₂: Technology has a positive influence on customer switching behaviour.

H₃: Service Payout has a positive influence on customer switching behaviour.

H₄: Trustworthiness has a positive influence on customer switching behaviour.

H₅: Responsiveness has a positive influence on customer switching behaviour.

H₆: Monetary Value has a positive influence on customer switching behaviour.

METHODOLOGY

In order to pursue the objectives of the study, the data from both primary and secondary data were collected. The secondary data sources related to the mobile number portability and theoretical framework was collected from different journals, magazines, newspapers, government publications, and websites of different telecommunication providers. The primary data was collected from the respondents (customers) with a well-structured questionnaire. The total population consists of the mobile users of Visakhapatnam city (urban area), India. To get the required information, a simple random sampling method was adopted and the customers who availed the MNP facility were approached personally, and some responses are collected through online mode. After a period of four weeks, 232 responses are gathered. After eliminating invalid and incomplete responses through data filtering, a total number of 200 usable responses are considered for the analysis. All the items are measured on five-point Likert scales, with anchors ranging from 'strongly disagree (1)' to 'strongly agree (5)'. The statistical techniques frequency, Garrett scores, mean, factor analysis, reliability analysis, and regression analysis were used to analyse the data using SPSS software.

STATISTICAL DATA ANALYSIS

The demographic profile of the respondents, the reasons for using a mobile phone, the mobile usage characteristics of the respondents and the various switching dimensions influencing the customers' switching behaviour towards mobile number portability from one service provider to other are assessed and discussed. The general profile of the respondents comprises of basic details such as age, gender, education, occupation and family income. The demographic profiles of the respondents were analyzed and the results are shown in Table 1:

Table 1. Demographic profile of the respondents

Demographic Factors	Frequency	Percentage (%)
Age Classification		
18-20 Years	16	8%
21-30 Years	84	42%
31-40 Years	53	27%
41-50 Years	37	19%
> 50 Years	10	5%
Gender		
Male	144	72%
Female	56	28%
Educational Status		
10 th /SSC	7	4%
Inter/Diploma	17	9%
Graduates	76	38%
Post Graduates	80	40%
PhD.	20	10%
Occupation Status		
Self-employed	39	20%
Housewife	11	6%
Government employee	48	24%
Private sector	63	32%
Students	31	16%
Farmers	8	4%
Monthly Household Income		
<10,000	8	4%
10,001-20,000	44	22%
20,001-30,000	52	26%
30,001 - 40,000	56	28%
> 40,000	40	20%

From the above table, it could be inferred that 42 per cent of the respondents belong to the age group of 21-30 years. The respondents with 27 per cent are in the age group of 31-40 years and 19 per cent belong to the age group of 41-50 years, whereas 8 per cent belong to 18-20 years and 5 per cent are above 50 years of age. Thus, the majority of the respondents belong to the age group of 21-40 years. It can be observed that majority of the respondents representing 72 per cent were males and 28 per cent are females. With regard to educational status 40 per cent, respondents are postgraduates and 38 per cent are graduates. As observed 10 per cent respondents are PhDs, 9 per cent of respondents are Inter/Diploma and only 4 per cent are 10th/SSC respondents. Thus, most of the respondents are either graduates or postgraduates. The occupational status of respondents shows that 32 per cent are private-sector employees and 24 per cent are government employees. As much as 20 per cent of the

respondents are self-employed, 16 per cent are students and only 4 per cent are farmers. Hence, the majority of the respondents are either private or government employees. The monthly household income of the respondents reveals that 28 per cent are between Rs.30,001-Rs.40,000, 26 per cent of the respondents have an income of Rs.20,001-Rs.30,000, 22 per cent of respondents are in the income group of Rs.10,001-Rs.20,000. Whereas, 20 per cent of respondents income is more than Rs.40,000 and 4 per cent of respondents have less than Rs.10,000 income. Thus, the majority of the respondents' monthly income lies between Rs.20,001-Rs.40,000.

The reasons for using a mobile phone by the customers are analyzed using Garrett ranking methodology as shown in Table 2. The majority of respondents are using mobile phones for their personal needs with 84.25 per cent score followed by business needs (67.80 per cent), Govt./PSU Employees (65.67 per cent), substitute for landline phones (57.37 per cent), Emergency needs (53.04 per cent), using phone by the influence of Friends / Relatives (50.98 per cent) and for other reasons (45.27 per cent).

Table 2. Reasons for using mobile phones

S.No.	Reasons	Garrett Score	Rank
1	Personal Needs	84.25	I
2	Business Purpose	67.80	II
3	Govt./PSU Employees	65.67	III
4	Substitute for Landline Phones	57.37	IV
5	Emergency Needs	53.04	V
6	Influence of Friends/Relatives	50.98	VI
7	Other Reasons	45.27	VII

The mobile usage characteristics of the respondents are shown in table 3. The analysis reveals that majority of the respondents representing 53 per cent have only one connection. As many as, 41 per cent have two connections and only 6 per cent have three & above. Regarding the mode of connection, 18 per cent respondents belong to postpaid, 76 are prepaid customers and 6 per cent have both postpaid and prepaid connections. The monthly recharge expense of the respondents reveals that 46 per cent spend Rs.250-Rs.400, 23 per cent spend Rs.100-Rs.250, 17 per cent of respondents spend Rs.400-Rs.750, 8 per cent spend more than Rs.750, and 6 per cent spend up to Rs.100 on mobile recharges in a month. The various sources through which the respondents get information are Advertisements (33 per cent), Friends/relatives (29 per cent), Internet (20 per cent), and Franchises/Retailers (19 per cent). The current service provider used by the respondents are Airtel with 37 per cent followed by BSNL (31 per cent), Idea (13 per cent), Vodafone (10 per cent), Reliance (6 per cent), Tata (3 per cent), and only 2 per cent are others service providers. It can be observed that 57 per cent of the respondents ported one time, 35 per cent ported 2 times, 7 per cent ported 3 times and only 2 per cent ported 4 times.

DIMENSIONS INFLUENCING CUSTOMERS' SWITCHING BEHAVIOUR

The dimensions influencing the customers' switching behaviour from one service provider to another service provider is analyzed. The descriptive statistics of the switching behaviour, item loadings, and validities are shown in table 4.

Table 3. Mobile usage characteristics of the respondents

Demographic Factors	Frequency	Percentage (%)
Number of Mobile Connections	106	53
One	82	41
Two	12	6
Three & above		
Mode of Connection	36	18
Post Paid	152	76
Pre Paid	12	6
Both		
Monthly Expenses on Mobile Recharge	12	6
Up to Rs.100	46	23
Rs.100 - Rs.250	92	46
Rs.250 - Rs.400	34	17
Rs.400 - Rs.750	16	8
More than Rs.750		
Source of Information about MNP	66	33
Advertisements (TV/ Newspapers)	38	19
Franchises/Retailers	57	29
Friends/Relatives	39	20
Internet		
Current Service Provider	61	31
BSNL	74	37
Airtel	19	10
Vodafone	26	13
Idea	11	6
Reliance	6	3
Tata	3	2
Others		
Number of Times Ported	114	57
1 Time	70	35
2 Times	13	7
3 Times	3	2
4 Times		

The descriptive statistics of the six switching dimensions' accessibility, technology, service payout, trustworthiness, responsiveness, monetary value and its effect on customer switching behaviour are discussed. Among the six factors, responsiveness is the highest rated by the respondents with a mean value of 3.92 followed by the factors service payout (3.86), accessibility (3.85), trustworthiness (3.85), technology (3.83), and monetary value (3.81). The responses indicate that the customers have a positive opinion towards switching the other service provider. In the case of accessibility, the highly-rated variable is variety of services offered by other service providers with a mean value of 4.12, followed by availability of better tariff plans as per requirement (3.98), convenience to access the other service provider (3.90), availability of 4G services with the competitor (3.65), and the competitors provide user-friendliness services (3.60). For the dimension technology, the highly-rated variable is no upgradation of existing plan with a mean value of 3.98 followed by the variables roaming problems (3.93), voice quality issues (3.87), poor access of internet facility (3.75), network coverage issues (3.73), and new technology introduced by other service providers (3.72).

In the case of service payout, the highly-rated variable is costly value-added services with a mean value of 4.08 followed by the variables hidden service charges (3.90), higher internet charges (3.85), high tariff and call rates (3.77), and an error in billing or deducting extra amount (3.69). Regarding the dimension trustworthiness, the highest-rated variable is better service quality by competitor with

Table 4. Descriptive statistics, item loadings and validities

Switching Dimensions	Mean	FL	AVE	CR	CA
Accessibility	3.85				
1. Variety of services offered by other service providers	4.12	.730			
2. Availability of better tariff plans as per requirement	3.98	.730			
3. Convenience to access the other service provider	3.90	.721			
4. Availability of 4G services with the competitor	3.65	.901			
5. The competitors provide user-friendliness services	3.60	.907			
Technology	3.83				
1. No up-gradation of the existing plan	3.98	.720			
2. Roaming problems	3.93	.694			
3. Voice quality issues	3.87	.709			
4. Poor access to internet facility	3.75	.643			
5. Network coverage issues	3.73	.876			
6. The new technology introduced by other service providers	3.72	.879			
Service Payout	3.86				
1. Costly value-added services	4.08	.767			
2. Hidden service charges	3.90	.671			
3. Higher internet charges	3.85	.713			
4. High tariff and call rates	3.77	.676			
5. Error in billing or deducting an extra amount	3.69	.818			
Trustworthiness	3.85				
1. Better service quality by the competitor	3.99	.804			
2. Ethical problems with the current service provider	3.96	.723			
3. Influenced by family/friends	3.81	.828			
4. Brand loyalty of other service providers	3.76	.663			
5. Promises made are not fulfilled at the right time	3.75	.646			
Responsiveness	3.92				
1. The service provider is not capable of solving the problem	4.13	.725			
2. Staff provides incomplete and inaccurate information	4.06	.799			
3. Timely information is not provided by the service provider	3.93	.679			
4. Employees are not available to handle customer problem	3.76	.696			
5. Poor response to customers suggestion/feedback	3.73	.716			
Monetary Value	3.81				
1. Lower international call rates by the competitor	4.11	.674			
2. Better offers/promotions by other service providers	3.93	.697			
3. Free talk time and SMS packs by competitors	3.77	.735			
4. Better offers on roaming by other service providers	3.69	.729			
5. Superior quality internet services at lower cost by the competitor	3.55	.809			
Customer Behaviour					
1. Not satisfied with the services of the current service provider	3.83				
2. Satisfied with the services of the ported service provider	4.07	.731			
3. MNP allows availing better services from the other service provider	3.84	.766			
4. MNP allows changing the service provider without losing the previous number	3.73	.771			

Note: FL-Factor Loadings, AVE-Average Variance Extracted, CR-Composite Reliability, CA-Cronbach's Alpha

a mean value of 3.99 followed by the variables ethical problems with current service provider (3.96), influenced by family/friends (3.81), brand loyalty of other service providers (3.76), and promises made are not fulfilled at right time (3.75). For the factor responsiveness, the highly-rated variable is service provider is not capable of solving problem with a mean value of 4.13 followed by the variables

staff provides incomplete and inaccurate information (4.06), timely information is not provided by the service provider (3.93), employees are not available to handle customer problem (3.76), and poor response to customers' suggestion/feedback (3.73). In the case of monetary value, the highly-rated variable is lower international call rates by competitor with a mean value of 4.11 followed by the variables better offers/promotions by other service provider (3.93), free talk time and SMS packs by competitors (3.77), better offers on roaming by other service provider (3.69), and superior quality internet services at lower cost by competitor (3.55).

The customer behaviour assessed based on the four variables reveals that the respondents are not satisfied with the services of current service provider which the highest mean value of 4.07 followed by the variables satisfied with the services of ported service provider ($\mu=3.84$), MNP allows to avail better services from the other service provider ($\mu=3.73$), and MNP allows changing the service provider without losing previous number ($\mu=3.68$). Overall, it is pertinent to note that the majority of the statements related to switching dimensions and customer behaviour have positive ratings by the respondents.

DISCUSSIONS

A structural equation model approach is used in the study. A confirmatory factor analysis to test the validity of the constructs, including item loading, construct reliability, and average variance extracted (AVE), is conducted as shown in Table 4. All the item loadings are greater than 0.5 on their expected factor and less than 0.4 on other factors; thus the construct validity is acceptable (Cheung, Chang, & Lai, 2000). AVE is used to measure the variance to the measurement error captured by the indicators. All the values of AVEs are greater than the cutoff value of 0.5. Additionally, the reliability of each construct is measured using the composite reliability (CR) and Cronbach's alpha. The results show that all constructs have higher scores than that of the acceptable level of CR and alpha 0.7. Every scale item is statistically significant at the significance level of 0.05. Thus, the data have good convergent validity.

Table 5. Correlation coefficient matrix and roots of the AVEs (shown as diagonal elements)

		1	2	3	4	5	6	7
1	Accessibility	0.644						
2	Technology	0.383	0.576					
3	Service Payoff	0.070	0.512	0.535				
4	Trustworthiness	0.060	0.387	0.469	0.542			
5	Responsiveness	0.140	0.514	0.362	0.522	0.524		
6	Monetary Value	0.412	0.367	0.430	0.512	0.503	0.533	
7	Customer Behaviour	0.269	0.521	0.427	0.517	0.582	0.528	0.569

The square root of each factor's AVE and its correlation coefficients with other factors and summarized results are shown in Table 5. The square root of each factor's AVE is larger than its corresponding correlation coefficients with other factors, showing good discriminant validity.

For the hypothetic SEM model, SPSS Amos is to test whether the empirical data conformed to the proposed model. The model includes 35 items describing 7 latent constructs: accessibility, technology, service payout, trustworthiness, responsiveness, monetary value and customer behaviour. The model fit of the research model was examined, as shown in Table 6. All the values of fit indices

are according to the recommended value and are acceptable. Thus, the results indicate adequate model fit between the research model and the empirical data.

To test the significance of each hypothesis path in the research model, the standardized estimates for all specified paths, as well as standard errors and test statistics for each path are analyzed. The result of the structure equation model is shown in Figure 2. The effects of accessibility and technology on customer switching behaviour are not supported; however, other paths are significant at $p < 0.01$

Table 6. Summary of fit indices

Fit Indices	χ^2 / df	RMSEA	GFI	AGFI	CFI	NFI	NNFI	IFI
Recommended Value	<3	<0.08	>0.90	>0.80	>0.90	>0.90	>0.90	>0.90
Values in the Study	2.73	0.058	0.91	0.84	0.96	0.94	0.96	0.96

Figure 2. Results of the structure model analysis

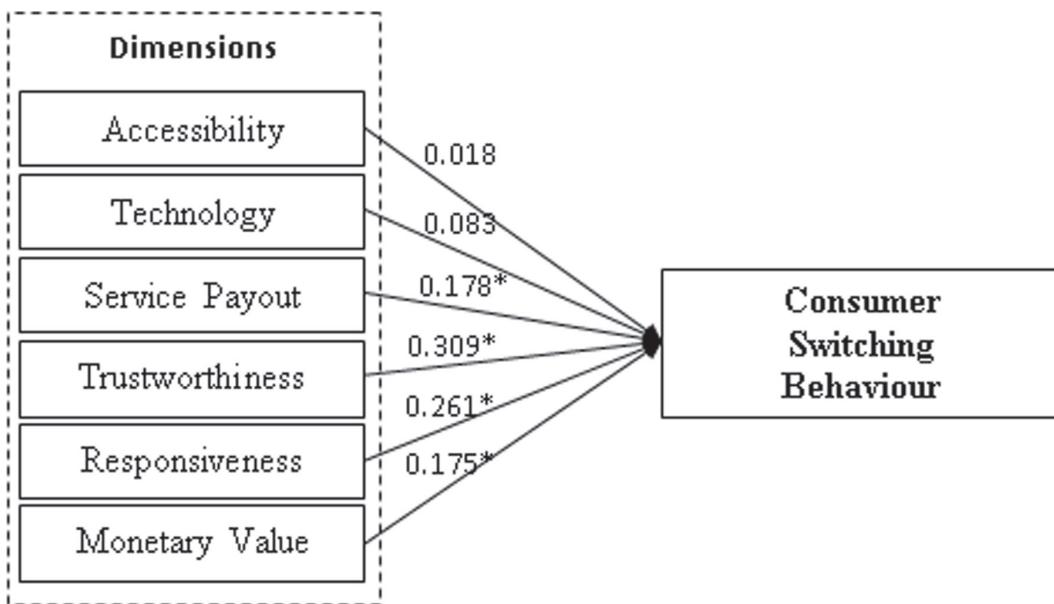


Table 7. Results of hypotheses test

Hypothesis	Path	Coefficients	S.E.	T value	Sig.	Remarks
H_1	Accessibility - Customer Behaviour	.018	.056	.331	.741	Not Supported
H_2	Technology - Customer Behaviour	.083	.070	1.184	.238	Not Supported
H_3	Service Payout - Customer Behaviour	.178	.062	2.886	.004	Supported
H_4	Trustworthiness - Customer Behaviour	.309	.067	4.631	.000	Supported
H_5	Responsiveness - Customer Behaviour	.261	.069	3.771	.000	Supported
H_6	Monetary Value - Customer Behaviour	.175	.066	2.658	.009	Supported

level. Among the factors shown in Table 7, service payout, trustworthiness, responsiveness, and monetary value have positive effects on customer switching behaviour.

Among the six dimensions, trustworthiness ($\beta=0.309$, $p=0.000<0.01$), responsiveness ($\beta=0.261$, $p=0.000<0.01$), service payout ($\beta=0.178$, $p=0.004<0.01$), and monetary value ($\beta=0.175$, $p=0.009<0.01$) have significant effect on customer switching behaviour supporting the hypothesis H_3 , H_4 , H_5 , and H_6 . The dimensions' accessibility ($\beta=0.018$, $p=0.741>0.01$) and technology ($\beta=0.083$, $p=0.238>0.01$) are found to have no significant effects on customer switching behaviour not supporting the hypothesis H_1 and H_2 . The study investigates the factors influencing customer switching behaviour. The effects of accessibility, technology, service payout, trustworthiness, responsiveness, and monetary value on customer switching behaviour are examined. This research allows gaining some insights into MNP services offered by mobile service providers.

As hypothesized, service payout, trustworthiness, responsiveness, and monetary value significantly affect customer switching behaviour towards mobile number portability. Specifically, trustworthiness is found to have the greatest effect on customer switching behaviour. This implies that customer behaviour will be most significantly influenced by the high reliability of service providers. Responsiveness, service payout, and monetary value are also positively influencing dimensions of customer switching behaviour. On the magnitude of significance, trustworthiness has the greatest effect, and the path coefficient is 0.309. Monetary value has less effect on customer switching behaviour. The other dimensions' accessibility and technology are not influencing on the customer switching behaviour towards mobile number portability.

CONCLUSION

The introduction of MNP has created a great hype and buzz in the market which is keeping the service providers on their toes. Hence, those who fail in providing satisfactory service will surely lose their customers. Thus, in spite of the late introduction of MNP in our country, it has significantly affected the way the business is done. The study identified the switching dimensions and examined its effect on customers switching behaviour. It sheds some light on the relationship between accessibility, technology, service payout, trustworthiness, responsiveness, and monetary value. Thus, the research fills the gap in understanding the dimensions, which is undergoing a process of rapid development. The study developed and validated a more comprehensive customer switching behaviour model and tested using the structure equation modelling of the proposed model.

The dimensions' service payout, trustworthiness, responsiveness, and monetary value show significant influence on the customer switching behaviour of mobile number portability, whereas the dimension accessibility and technology do not show any effect on the customers switching behaviour. Trustworthiness is the most influencing dimension on customer switching behaviour to shift from one service provider to others. Therefore, it can be found that the switching dimensions show a positive effect on the customers' switching behaviour.

MANAGERIAL IMPLICATIONS

The study has important implications for practice as well. One of the important tasks the mobile service providers face is how to enhance customer satisfaction and retain them. Therefore, service marketing strategies of the mobile service providers may be more fruitful through focusing on these psychological processes. Trustworthiness appears to be an important factor influencing customer switching behaviour which implies that, in order to attract more current customers, the service providers must try to establish an impression that they are honest to their customers and care about customers' needs, which can then enhance the degree of customers' perceptions of trust.

The companies have started paying attention to reducing the profits and are targeting on the volume of the business. In the telecom sector, it common that the new companies have more sale

promotion offers to appeal to customers, while old players do not have much to offer. But now every service provider is trying to eye on the other service providers' customers and to retain their own users. To effectively increase customer switching behaviour, service providers should focus on the various types of costs that customers perceive. Moreover, they can decrease the costs of staying with the current provider, increase the quality of the service to enhance the customers' bonds with them, and improve the customers' value of their service. Therefore, in order to meet the psychological demands of different types of customers, the mobile service providers should exercise caution in improving pleasure and trust for younger people, and in enhancing the switching behaviour for more experienced people.

To attract younger customers, the mobile operators should provide more schemes in the postpaid CUG and special offers for the student category in the prepaid as well. They should concentrate more on sufficient network coverage by the installation of new towers in the uncovered areas. The franchises and retailer salespersons should be trained to communicate the promotions effectively to non-customers in a friendly manner and not a product pusher. The operators should concentrate more on the influencing aspects (ISD call rate, free local SMS, booster packs and call cutter cards), free national roaming, rationalising the tariffs in customer point of view in order to utilize the services more. The main aim should be to satisfy the customer and focus on maximizing the relevance of offers based on the subscriber's profile, balance, real-time requirements, and past behaviour. The service providers need to set up a customer care cell to seek feedback from subscribers opting for change. The strategy for attracting new ones should consider the customer expectation and mode operator's service to provide the desired propositions, and provide secure affordable and high-quality service to all users.

LIMITATIONS AND FURTHER RESEARCH

Even though the rigorous validation procedure allows developing a research model for exploring customer switching behaviour, the study has some limitations. The study developed a research model to examine the factors influencing customer switching behaviour towards MNP. The study was carried out in Visakhapatnam city of India, hence the results may not be fully generalized for other areas, as beliefs and perceptions may differ among regions and countries. Also, a self-report scale based on customers' perceptions was used to measure research dimensions, so the results might suffer from common method bias. Various other methods, such as customer interviews and direct observation, could be employed to provide a richer understanding of customer switching behaviour and to overcome potential bias from common method variance.

There is vast scope for further investigation in the same area. The study can be extended to examine the impact of MNP on other segments, and in different geographical regions. Also, further research can address the interaction of MNP with other factors affecting brand-switching between mobile service providers. Further, the demographic factors can be used as moderators to know its influence on the switching dimensions and customer behaviour. Last but not least, future research is encouraged towards incorporating the group of non-experienced online customers, with the ultimate research goal of identifying appropriate mechanisms for attracting new online customers.

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Violent Video Games and Their Relation to Aggressive Behaviour in Late Childhood in Pakistan

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ABSTRACT

Most of the European and American literature suggests that playing violent video games can increase aggression in real-life situations in children, but the extent to which this is true in Pakistan is largely unknown. This is a correlational study that explored whether the amount of time spent playing violent themed video games was associated with aggressive behaviour and whether playing different kinds of violent themed video games could predict aggressive behaviour in late childhood. The sample of 100 children (mean age 13.37) was taken, and children were asked to fill in a diary when they played videogames for a week. The results revealed the time spent playing violent video games (role play, action and fighting, and first-person shooter) was positively correlated with aggression; however, only role play and first-person shooter video games were positive predictors of aggressive behaviour. Current research suggests that if children spend more than 30 minutes a day playing violent video games, their chances of learning aggressive behaviour may increase.

KEYWORDS

Action, Adventure, Aggression, Anger, Fight, First-Person Shooter, Pakistani Children, Role Play, Violence

INTRODUCTION

Considerable research has explained that playing violent video games can increase aggressive behaviour in children and adolescents (Anderson et al 2010). For studying the association between playing violent video games and aggressive behaviour in children, Bandura's social learning theory has received support from researchers (Paik & Comstock, 1994; Wilson et al, 1997). Bandura and colleagues conducted an experiment in 1961 with 73 preschool children and suggested that children learn behaviour by observing models. Children who observed a man kicking, hitting and pulling a Bobo doll exhibited more aggressive behaviour towards the Bobo doll in comparison to those children who had not observed that aggressive behaviour. They replicated the findings in 1963 and proposed limiting children's exposure to violent media content (Bandura, 1973, 1986). Since then this debate has continued in academia (Konijn et al., 2007). Children are often involved in playing games (outdoors and indoors) but due to the shift in trends towards playing video games, especially fighting video games, the chances of learning aggressive behaviour have increased (Krish, 2002). Therefore, presumably, if children play violent themed video games they may exhibit aggressive behaviour in real-life situations.

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Aggression and Violent Video Games

The first meta-analysis on the relationship between aggressive behaviour and playing violent video games was conducted by Anderson and Bushman in 2002. They found significant effects of violent video games on aggressive behaviour, cognition, emotions, prosocial behaviour and biological arousal and advocated the General Aggression Model (GAM). Based on this model, it was found that various longitudinal studies, meta-analyses, event-related studies, and studies with juvenile delinquents reported that playing violent themed video games predicted aggression in adolescents and children (Anderson et al., 2008, 2010; Bailey et al., 2011; Delisi et al., 2013; Greitemeyer & Mugge, 2014; Liu et al., 2015).

Previously, in a study, four- to six-year-old children were observed while playing games of their own choice. The results showed that those who played aggressive games exhibited more violent behaviour than those children who played their usual games (Silvern & Williamson, 1987). Similarly, research conducted with five- to seven-year-old children, half of whom played a violent video game while the other half played non-violent video games, reported that the former exhibited more aggressive behaviour than the latter (Schutte et al., 1988). Likewise, the results of another study carried out with seven- and eight- year-olds showed that children who played violent video games behaved more aggressively in interpersonal relations afterwards than those who played non-aggressive video games (Irwin & Gross, 1995). The same result was found in survey research with teachers of sixth- and twelfth-grade students (Fling et al., 1992). Furthermore, it was observed that if children played video games in high temperatures this increased their aggressive behaviour (Anderson et al., 1995).

In spite of the above findings, a few researchers have not supported this argument (Graybill et al., 1985; Scott, 1995). For example, Winkel et al (1987) suggested that their research participants who played violent video games did not show aggression when playing a teacher-student role-play game. Similarly, Ferguson (2007) conducted a meta-analysis and established the argument that studies which presented a positive association between violent video games and aggression were more likely to publish than those that showed negative results. Later on, in 2008 Ferguson and colleagues introduced the catalyst model (CM), which stressed that if a child or adolescent has a predisposition to anger, only then does he/she manifest aggressive behaviour, which ultimately develops his/her aggressive personality. They disagreed with the notion that playing video games can develop aggressive behaviour in a child, which contrasts with the GAM. There is literature that supports their argument that antisocial personality traits can predict aggressive behaviour in adolescents, rather than playing violent video games (Ferguson & Kilburn, 2009; Ferguson et al., 2012; Furuya-Kanamori & Doi, 2016; Huesmann et al., 2017). However, Anderson et al. (2014) criticised their research by pointing out its various methodological limitations. Regardless, this discussion shows that the results are mixed (Wiegman & Van Schie, 2000; Grifðths, 2000).

In short, the existing debate centres on Europe and America; however, in Pakistan, research on this particular topic is still in its infancy. For example, in Pakistan, research found that male adolescents who are addicted to playing video games showed more aggressive behaviour and social isolation than female adolescents (Qureshi et al., 2013). Another survey study reported that playing violent video games increases the level of aggression in children, especially in boys, and they exhibit more aggressive acts towards their peers (Fatima & Ashfaq, 2014).

Although previous research conducted in Pakistan informs us about the association between aggressive behaviour and playing video games, the existing indigenous literature is still unable to shed light on how much time spent playing different types of violent video games is associated with Pakistani children exhibiting aggressive behaviour. Therefore, the current study aims to explore this. In addition, this study is focused on determining the gender differences in aggressive behaviour among boys and girls who play violent video games.

Gender Differences in Playing Video Games and Aggressive Behaviour

For the last two decades, due to the law and order condition of Pakistan after 9/11 (Abbas & Javaid, 2017; Noor et al., 2013) most of the children stayed at home and relied upon video games for entertainment. However, it is also true that 50% of the available video games in the shops are built on the subject of violence (Gentile & Anderson, 2003). Till to date no violent video game developed by Pakistan is available in the market to play (Euan & Sophia, 2015); therefore, most of the video games played by the Pakistani children are developed by international companies. Considerable research advocates that playing violent video games can increase aggressive acts in both girls and boys (Silvern & Williamson, 1987; Schutte et al., 1988).

With reference to gender differences, research reported that girls from 5th grade engaged more in aggressive play after playing violent video games than boys (Cooper & Mackie, 1986). Fling et al. (1992) found that male students in grades six to twelve preferred playing violent video games and showed more aggression than girls in the same grades. Similarly, Shibuya et al. (2008) conducted a one-year longitudinal study with 5th- to 6th-grade students and found that hostility was increased in boys after playing violent video games but not in girls. Another longitudinal study with Japanese and American school students aged between 12 and 15 years old reported that boys who regularly played violent video games in the first five years of their lives exhibited more physical aggression later on than girls. Krahé et al (2004) found that German male teenagers played more violent video games and gave more hostile reasoning as well as accepting more aggression-related norms compared to German female teenagers. Other studies have proposed that in violent video games the characters are mostly male; therefore males identify with them, which is why they exhibit more aggressive behaviour than females (e.g., Yang et al., 2014). The existing literature has been criticised for various methodological limitations. For example, aggression measures were used that did not focus on measuring physical aggression, and most researchers used unstandardised measures of aggression and were therefore unable to control other factors that may have affected the results. Similarly, the time spent playing video games by the research participants also varied in different studies (Ferguson, & Kilburn, 2009; Savage & Yancey, 2008).

Current Study

On the basis of the above literature review, it can be concluded that most of the work on this topic has been carried out in European countries but less work has been carried out in Pakistan. Video game units are easily available on the market and nearly every child in Pakistan has access to playing them, irrespective of their socioeconomic status. Roberts et al (2005) reported that in middle childhood children usually spend 65 min per day playing video games. This declines to 33 min per day for 15 to 18 year olds. A study found that most video games had their content rated as violent by the gaming industry, and even those video games that were rated appropriate for everyone contained 64% violent content (Thompson & Haninger, 2001).

Therefore, this research aims to explore the association between playing violent video games and aggressive behaviour among Pakistani children. The literature supports the fact that if children are exposed to violent content in TV programmes or video games they display aggressive behaviour in the real world (Paik & Comstock, 1994). Most of the available video games demand the active participation of the player, which may increase the chances of learning and exhibiting aggressive behaviour (Wood et al., 1991). It has been observed in the mental health services that children referred to psychologists have a prominent problem of aggression. Therefore, it is important to identify those external factors that may contribute to learning aggressive behaviour and also facilitate exhibiting it (Krug et al., 2002). Until recently in Pakistan, very limited research had been conducted on whether children who spent more time playing violent video games could learn aggressive behaviour. This is important as it was suggested by Bandura in 1963 that children learn behaviour through observation. Based on the above, the following hypotheses were proposed:

- H1: There is a positive correlation between playing violent video games and aggression in late childhood (mean age=13.37) .
- H2: Children who spend more time playing violent video games exhibit more aggressive behaviour than those who spend less time playing such games.
- H3: Different types of violent video games could positively predict aggressive behaviour in late childhood.
- H4: Boys who played violent video games exhibit more aggressive behaviour than girls who played violent video games.

Method

An a priori power analysis was conducted using G power to test the prediction of four predictors, using a two-tailed test. The results showed an effect size of $d=.35$ and an alpha of .05. This revealed that a total sample of 59 was required to achieve a power of .95. Therefore, the sample consisted of 100 school students in Lahore, and a self-reported questionnaire was used to measure violent aggression and the time spent playing video games. Details of these are provided in the following sections.

Participants and procedure: The sample consisted of 100 children (50 boys and 50 girls) from grade five to ten. The sample was recruited from six different private and government schools in Lahore through purposive sampling. The mean age of the sample was 13.37 years with SD 1.68. Half of the data was collected from 9th-grade students. Most of the participants had four siblings (27%) and were the last born (36%). Most of them (99%) enjoyed satisfactory relationships with their parents. Most of them spent between 1 and 1.5 hours playing video games in a day.

Firstly, the research was approved by the ethical committee of Punjab University, Lahore. Later on, consent was gained from the school authorities to participate in the research. A total of 15 schools were approached, from which only six gave consent. The researcher approached the students in the classroom and explained the research to them. The parent's consent form was only given to those students who indicated their consent as the subjects were younger than 16. In the next visit, a total of 150 students out of 200 brought in their signed parent's consent form. They were provided with a diary in which they had to record the time spent playing different video games for a week (Wednesday to Tuesday).

After a week, the researcher visited the schools again and 100 children brought in their completed diary forms. A self-reported questionnaire on aggressive behaviour was given to those who had completed the diary. This took 10 to 15 minutes to fill in. For the students ($n=10$) who were not present on that particular day, the researcher visited their school on another day in order to ask them to fill in the questionnaire. Students from one school in each grade completed the form at the same time in order to avoid influencing each other. Though their response sheet was not anonymous, they were assured that their information would not be disclosed to anyone, along with their names.

Measures

The following measures were developed to test the above-mentioned hypotheses.

Video Games: Children were asked to write in the diary a time in minutes that they had spent playing video games for a week. Most previous research that used video game questionnaire did not present the subjects with different types of violent video games. Moreover, no research has specifically used the video game concept by categorising it into multiple types of play (type of game, whether or not the player was a first-person shooter, etc.). Therefore, due to the nature of the study objective, the participants were provided with four types of violent video games, i.e. first-person shooter (e.g., call of duty), action and fighting (e.g., Donkey Kong & Mortal Kombat), role play (e.g., Dungeons & Dragons) and adventure (e.g. Prince of Persia: The Sands of Time). For a week each child was asked to tick the category or categories of the video games in a diary and to enter the time in minutes

that they had spent playing these games. The recorded time fell into the range of 0 to 120 mins. The Cronbach alpha reliability of the scale was .60.

Aggressive Behaviour: Physical and verbal aggressive behaviours were measured through the following items: how many times did you fight someone by throwing objects at him/her? How many times have you beaten someone? How many times have you threatened someone? The children recorded their behaviour by reporting the number of times they engaged in aggressive behaviour for a week. The range of reported aggressive behaviours was between 0 and 50 times. The Cronbach alpha reliability of the scale was .30, which may be because there were only a few items.

Pilot Study: The pilot study was carried out with the sample of 30 children with the mean age of 13 years in order to find out whether the written items were understood by them clearly, as well as for construct validity the designed survey was judged by the three professional psychologist who ranked on the suitable of the items for particular construct on 1 to 10 item rating scale for content validity (Field, 2013). The mean value was 8 for video games, and 8.5 for aggressive behavior survey. However, reliability test was carried out after the whole data collection. Moreover, data which was collected for pilot study was also incorporated into the data set for final data analysis.

Data Analysis

The Kolmogorov-Smirnov and Shapiro Wilk test showed that the variables studied in the research did not meet the assumptions of normality; therefore, the Spearman-Brown correlation was calculated to check the association between playing video games and aggressive behaviour. Next, to examine gender differences, the Mann-Whitney U test was used. However, backward regression analysis was conducted to find out whether different types of video games (role play, adventure, action and fighting, and first-person shooter) would predict aggressive behaviour in the research participants. Regression analysis can be used with non-normative data due to its robust nature; however violations of assumptions make the analysis weaker and one must be cautious when generalising the results (Tabachnick & Fidell, 2001; Field, 2013).

Results

To examine whether or not playing violent video games was associated with aggression, a Spearman-Brown correlation was conducted.

Correlation

Table 1 is in line with the expectation that the time spent playing violent video games (role-play, adventure, action and fighting, and first-person shooter) is positively correlated with aggression. A significant positive correlation was found between three different types of violent video games (role play, action and fighting, and first-person shooter) and aggression. As can be seen, there was a negative

Table 1. Spearman-Brown correlation between study variables (N=100)

Variables	1	2	3	4	5	6	M	SD
1. Time spent on Role Play	-	.30 **	.21 *	.27 **	-.14	.40 ***	68.5	44.8
2. Time spent on Adventure	-	-	.50 **	.45 **	-.07	.16	37.1	23.5
3. Time spent on Action and Fighting	-	-	-	.64 **	-.03	.29 **	34.3	24.9
4. Time spent on First-person Shooter	-	-	-	-	-.04	.35 **	31.0	28.1
5. Time spent on Others	-	-	-	-	-	-.12	.02	.22
6. Aggression	-	-	-	-	-	-	16.56	10.6

Note: ***p<.001, **p<.01, *p<.05.

correlation between other types of violent video games and aggression. This result suggests that as the research participants spent more time on playing violent video games they acted more aggressively.

Gender Difference

In Table 2, a Mann-Whitney U test revealed significant gender differences in the measures of time spent playing violent video games and aggression. The mean rank of boys was greater than that of girls for the measure of role play, suggesting that boys were more likely to assume the role of the character they had been controlling while playing the video game.

The mean rank of boys was greater than that of girls for the measures of adventure, action and fighting, and first-person shooter indicating that boys played more adventurous video games in which they had to do challenging tasks, action and fighting and first-person shooter games, compared to girls. However, the mean rank of girls was greater than that of boys for the measure of other types of games, indicating that comparatively, girls played more games different to the four listed categories (role play, adventure, action and fighting, and first-person shooter). The test also revealed gender differences in the measure of aggression. The mean rank of boys was comparatively higher than the mean rank of girls, indicating that boys show more aggression than girls.

The results of the analysis revealed that boys spend more time playing violent games than girls. Compared to girls, boys have a stronger preference for game genres such as role-play, adventure, action and fighting, and first-person shooter games. This may also indicated that all palyed games not only reinforce aggressive behaviour but also have some catharsis value in it too.

Regression

As presented in Table 3, the results showed that video games with content related to role-playing and acting as a first-person shooter can predict aggressive behaviour. However, video games with content related to adventure and action and fighting did not predict aggressive behaviour.

Discussion

With reference to the hypothesis, it was established that the amount of time spent playing a video games was positively correlated with aggressive behaviour. Most of the participants spent between 60 and 90 minutes a day playing video games. This corresponded with the results of Anderson and Bushman's (2002) research, which reported that only 20 minutes of playing video games creates temporary conflict and short-term aggression. Similarly, Hasan et al (2013) conducted a study in which they asked the participants to spend 20 minutes (per day) playing a violent or non-violent video

Table 2. Mean difference in time played between role play, adventure, action and fighting, first-person shooter and others, and aggression among boys and girls (N=109)

Variables	U	p	Mean Ranks	
			Boys (n=50)	Girls (n=50)
Time spent on Role Play	438	.00	72.95	34.59
Time spent on Adventure	1350.5	.43	57.22	52.48
Time spent on Action and Fight	1385.5	.56	56.61	53.17
Time spent on First-person shooter	1266.0	.19	58.67	50.82
Time spent on Others	1421.0	.13	54.00	56.14
Aggression	1065.5	.01	62.13	46.89

Note: p<.05

Table 3. Backward regression analysis of different types of violent video games as the predictors of aggressive behaviour (N=100)

Predictors	Aggressive Behaviour								
	Step 1		Step 2			Step 3			
	B	S.E.	B	B	S.E.	B	B	S.E.	β
Role Play	.07	.02	.30**	.07	.02	.29**	.06	.02	.26**
Adventure	-.07	.05	-.16	-.07	.05	-.13	-	-	-
Action and Fighting	.05	.06	.11	-	-	-	-	-	-
First-person Shooter	.10	.05	.28*	.13	.04	.35**	.11	.03	.29**
R ²		.20			.19			.18	
F		.000***			.000***			.000***	
ΔR^2		.18		.18				.18	

Note. *p<.05, **p<.01, ***p<.001, S.E. Standard Error, B = Unstandardised coefficients, β =Beta (Standardised coefficients), R² = explained variance.

game over 3 days. After playing the video game they were asked to play a competitive task, and they were told to blast their opponent with an unpleasant sound if they won. The results indicated that the research participants who played violent video games blasted their opponents with an unpleasant sound longer than those who played non-violent video games. They interpreted this as an increase in aggressive behaviour due to playing violent video games.

In the present research, the mean ranks clearly indicated that boys spent significantly more time playing violent video games than girls over a week. These findings correspond to those by Ihori et al (2007), who reported that boys spent more time playing video games than girls. Boys played video games four days a week for one hour during weekdays and two hours on weekends, while girls played video games two days a week for less than an hour during weekdays and one hour on weekends. Similarly, various researchers argue about gender differences in reference to video game preferences and time spent playing these games (Hamlen, 2010, 2011; Ivory, 2006; Jenson & de Castell, 2010; Livingstone & Bovill, 1999).

In the present research, the mean age of the research participants was 13 years. They spent between 60 and 90 minutes a day playing video games, and boys played more violent video games than girls. This was supported by the previous literature as most research reports that children aged between 11 and 14 years old spend more time playing video games than any other age group and that boys play more video games than girls (Rideout et al, 2010; Loeber & Stouthamer-Loeber, 1998).

The results of the present study also suggest that playing violent video games is a predictor of aggressive acts. According to the results, role-play games and first-person shooter games were significant predictors of aggressive behaviour. This can suggest that when children play video games for long time periods they can become involved in physical and verbal fights in real life. Similalry, Gentile et al (2004) suggested that students involved most in physical fights and arguments with their teachers spent most time playing video games with aggressive content. Research also reflects that playing violent video games not only decreases the ability to empathise but also decreases the helpful behaviour of children (Anderson & Huesmann, 2003). Moreover, substantial literature based on the findings of meta-analyses, experimental, correlational and longitudinal studies confirms that violent video games can increase aggressive thinking, emotions and behaviour both in short- and long-term contexts (Anderson & Dill, 2000; Anderson et al., 2007; Anderson et al., 2010). The present study concludes that the research participants were playing violent video games for between 60 and 90 minutes daily, and the male participants played more violent games than the girls. Moreover, two

types of violent video games – role-playing and first-person shooter – were identified as predictors of aggressive behaviour in the current sample.

This study also had certain limitations; therefore, it is suggested that these results be generalised with caution. Firstly, the sample size was small and schools in a particular city and area were taken as the sample, so these results cannot be generalised. There might be differences in the levels of aggression between students studying in other cities and in rural areas. Future research in this domain should be conducted with a larger sample size so that the results can be generalised. Secondly, the measures used in this study were lengthy. The participants were asked to keep a record of their video game playing for 7 days. As reported by the participants, it was quite difficult for them to fill in this information on a daily basis. They became bored as they had to fill it in for a week. A few participants even lost their questionnaires and were unable to return them. A short questionnaire should be used to keep the participants interested. Thirdly, one of the major concerns of the study was that the situational factors associated with aggression during childhood (e.g., friends, parents, family environment, societal environment and etc) were not assessed. This is a concern because aggression is a multivariate construct. These factors should be studied to make this research more effective. Fourthly, the research has followed a correlational methodology; therefore, the simple correlation between the studied variables does not allow us to draw any conclusions in terms of causality. This means that it is impossible to determine whether aggressive children have a tendency to play violent video games or violent video games cause violent behaviour. Therefore, future longitudinal studies would allow these limitations to be amended. Lastly, self-reported measures were used for data collection. Self-reported answers may be exaggerated; the respondents may be too embarrassed to reveal true personal details. They may have manipulated their responses as there is a tendency for individuals to provide socially acceptable answers. Various biases may affect the results. Future research should use objective measures to study this phenomenon.

Besides these limitations, this research is important because unlike previous research it not only focuses on the effects of violent video games on aggression but it also explains which type of violent video games, i.e. role play, action and fighting, adventure and first-person shooter, leads to aggressive behaviour in children. This can help parents to actively scrutinise video game content and wisely select age-appropriate video games for their children.

This study demonstrated how much time an individual in Pakistan spends playing violent video games on a daily basis. Usually, when children showed aggressive behaviour in Pakistan they were treated in either of the following way. Firstly, they were physically punished by their parents in order to restrain them for future aggressive behaviour. Secondly, their aggressive behaviour is ignored by thinking their young age. Both of these practices were not very helpful to control aggressive behaviour in most of the cases. Therefore, this research finding will help parents to set rules for their children about the type of video games they play or how long they spend playing them in order to control their effects on their children. This can also help school teachers and counsellors to understand one of the reasons for aggressive behaviour in this age group and ultimately assist them with mapping a management plan for any problematic behaviour. Moreover, this study suggests to the public health establishment that playing violent video games may increase children's risk of behaving aggressively in the real world. They can then develop a plan to guide parents in their attempts to select productive video games for their children.

The current research has several implications, not only for future studies but also for practical measures that can be taken to help children who are experiencing behaviour issues due to playing violent video games. The findings of the current study revealed that if children spend a lot of time playing different types of violent video games they exhibit more aggressive physical and verbal acts. This study can therefore help to develop intervention strategies to prevent aggressive behaviour in late childhood.

In sum, the research has found that different types of violent video games (role play and first-person shooter) lead to aggression. Therefore parents, guardians and teachers should give special attention to children who indulge in aggressive acts, i.e. physical harm, swearing while fighting, threatening to harm others, beating others, and fighting by throwing objects at someone.

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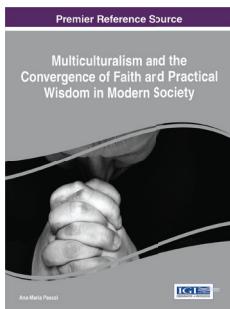
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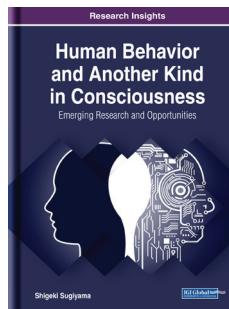
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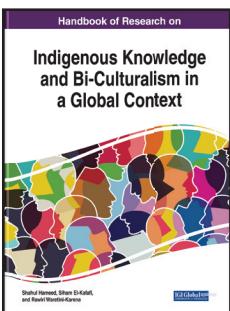
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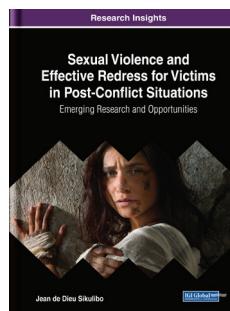
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