A Study of Learning Style Preferences and Challenges Faced by the Students in Virtual Education

Sobia Yaseen[a], Dr. Bushra Iqbal Chohan[b], Wajeeha Komal[c], Dr Mudassir Hussain[d*], Roza Jamal[c], [a] University of Kotli, AJK, [b] Fatima Jinnah Women University Rawalpindi, [c] Kohat University of Science and Technology, Kohat, [d*] University of Lakki Marwat, KPK, Pakistan**.** Email: [d*]mudassir@ulm.edu.pk

This research was designed to identify the learning styles preferences, and to explore the challenges, and learning strategies of the students of Virtual University of Pakistan. The research approach of the study was mixed method, in which quantitative approach was used for identifying the learning styles preferences of students of Virtual University in Pakistan. The qualitative approach was employed to find out the challenges faced by the students having different learning styles in virtual learning environment, and to identify the learning strategies which they used before and after starting online mode of education in order to cope with the academic requirements of virtual education and to improve their learning. In the quantitative phase of the study, a sample of 149 students of business administration in Virtual University of Rawalpindi, Islamabad, Gujarkhan, Kahuta and Muzafrabad city was identified according to the three main learning styles, i.e., auditory, visual and kinesthetic, and classified as auditory, visual and kinesthetic learners. A small group of 5 students (total 15) from each learning group was conveniently selected as the informants for the qualitative part of the study. Semi-structured, open-ended interviews were conducted with these participant students. There were considerable differences and similarities found in the challenges faced and learning strategies used by the students with respect to the virtual education.

Key words: *Learning styles, Virtual learning, Challenges, Learning Strategies*

Introduction

Every individual is different from other individuals in this world and every individual possess a different learning style. Learning styles preferences has a great importance for learners to learn things. As Dunn (1990) claimed that students who are informed about their learning-style preferences and who have been exposed to learning strategies that are compatible with their preferred learning style perform better academically.

All individuals in this world learn through a range of learning mechanisms. Individuals can learn more if their mode of instruction or teaching method matches their learning style. Human beings are unique in their primary adjustment related to the process of learning. As a human being we are a learning group and learn the skill to adjust our self into the material and community worlds, as well as to have a sense to determining and creating these worlds (Kolb, 1984). Learning styles deal with the theory that centers on the content and products of learning and differences in the process of learning (Silver, Strong and Perini, 1997).

There is difference between traditional system of education and Virtual Education. As normal mainstream education imparted in schools and colleges, where a teacher imparts face-to-face education to students in a classroom environment is called traditional mode of instruction (Buck, 1999; Thornbury, 1999). Whereas Virtual Education is a space that contains computer-generated environments, in which various users take actions, interact, converse and work together using personified representations in a mutual space (Bartle, 2003).

Virtual Education in Pakistan

Virtual Education is a space that contains computer-generated environments, in which various users take actions, interact, converse and work together using personified representations in a mutual space (Bartle, 2003).

The Virtual University of Pakistan is a pioneer in introducing and imparting 'Virtual Education' in the country. It was established in 2002 by the Government of Pakistan, it is providing education of international standards to all individuals of the country. Virtual University holds a federal charter from the Government of Pakistan and gets a federal recognition from the Higher Education Commission, Pakistan. It is empowering learners for challenging tasks by offering market-driven skill-based programs.

The Virtual University is a public university located in urban area of Lahore, Punjab, Pakistan. Its additional campus is also located in suburban area of Karachi, Sindh, Pakistan. The primary objectives of virtual university in Pakistan are to promote distance education in modern information and communication sciences. The virtual university is noted for its online lectures and broadcasting accurate programs regardless of their students' physical locations. Students face different challenges when they shift their mode of education as from traditional system of education towards online system of education at Virtual University in Pakistan.

When students having a traditional education background enter a virtual education environment, they face various academic problems in their education. For example, all students are not well-versed in using technology, and some may not know how to discipline themselves for studying in a virtual education environment or which study skills to use for that matter. Some students may even find it difficult to understand concepts without the physical presence

of the teacher, where they can access him or her. The researcher therefore wanted to study the students' problems and explore how they cope with them to navigate their studies in the virtual education system.

Method

In order to frame this research, the mixed method paradigm was considered as most appropriate for the problem addressed in the present research. Mixed method research is "practical because individuals tend to solve problems by using both numbers and text" (Creswell, 2003, p. 20). For the purpose of the research a pragmatic framework of mixed-methods has been employed which incorporates both the quantitative and qualitative research approaches to address different research questions posited in this study. A mixed methods approach is one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem-centered, and pluralistic). It employs data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems (Creswell, 2003, p.19). This study identified learning styles preferences of students of Virtual University by employing quantitative methodology. For investigating the challenges faced by students of virtual university along with their adopted learning strategies, the qualitative techniques (semi-structured interviews) were employed. In this way, under the paradigm of pragmatism, the researcher employed both qualitative and quantitative methodologies to achieve the main objectives of the study.
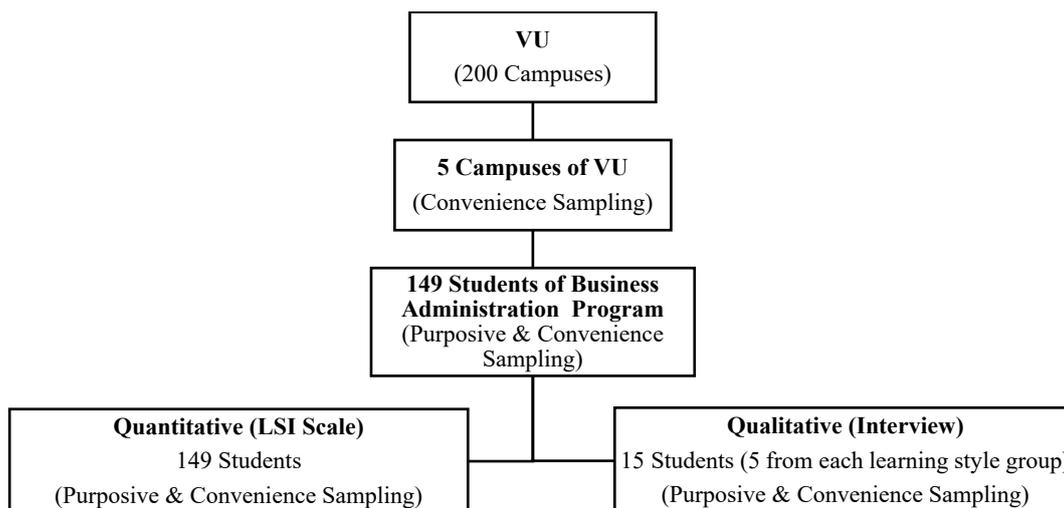
Sample

Since the study was conducted on students having virtual education system of education, the population of this entire study was comprised of the students of Virtual University. The students of business administration of virtual university of Pakistan comprised the population of this study. The sampling technique for the quantitative and qualitative phases of the study was purposive and convenient sampling technique, which is a non-probability technique. Convenience sampling, as the name implies is a specific type of non-probability sampling method that relies on data collection from population members who are conveniently available to participate in study (Necessary Knowledge to Conduct a Business Research, 2016). A purposive sample is "a non-representative subset of the larger population, and is constructed to serve a very specific need or purpose" (Necessary Knowledge to Conduct a Business Research, 2016).

For conducting this research, the purposive convenient sampling technique was employed by the researcher. The purposive sampling technique was used to ensure the homogeneity of the students in terms of their discipline in order to differentiate between them only on the basis of their learning styles (the quantitative phase), and thereby to find if the students from the same

discipline had any similarities or dissimilarities between their challenges and learning strategies (qualitative phase). The convenient sampling was used for both the quantitative and qualitative phases in selecting the students on the basis of their availability at virtual university campuses, when the researcher visited them.

For the selection of research participants, the total sample of the study was (N=149), which was conveniently selected by the researcher from the selected campuses of virtual university. The students from the business administration including BBA and MBA were purposively and conveniently selected for the identification of their learning style.

Moreover, for qualitative phase of the study the researcher used convenience and purposive sampling to select five students from each of the three learning styles to be part of the study. The total number of students interviewed for the qualitative phase of the study was fifteen (N=15). A graphic organizer is presented below to give a summarized view of the sampling technique and sample size for this study for the quantitative and qualitative parts.

```
                        ┌─────────────────────┐
                        │         VU          │
                        │   (200 Campuses)    │
                        └─────────────────────┘
                                  │
                        ┌─────────────────────┐
                        │  5 Campuses of VU   │
                        │(Convenience Sampling)│
                        └─────────────────────┘
                                  │
                    ┌───────────────────────────┐
                    │ 149 Students of Business  │
                    │ Administration  Program   │
                    │  (Purposive & Convenience │
                    │        Sampling)          │
                    └───────────────────────────┘
          ┌───────────────────┴────────────────────┐
┌─────────────────────────────┐      ┌─────────────────────────────────────┐
│  Quantitative (LSI Scale)   │      │     Qualitative (Interview)         │
│        149 Students         │      │ 15 Students (5 from each learning   │
│ (Purposive & Convenience    │      │         style group)                │
│         Sampling)           │      │ (Purposive & Convenience Sampling)  │
└─────────────────────────────┘      └─────────────────────────────────────┘
```

Instruments

Kolb's learning Style Inventory Scale: After the review of relevant literature the researcher decided to apply the Kolb Learning Style Inventory scale, which was revised in 2005. The most popular learning style inventories and one that is often used in distance learning and for adult research is the Kolb's Learning Style Inventory (Kolb, 1986; Dillie & Mezack, 1991; Dowdall, 1991; Diaz &Cartnal, 1999; Miller, 2005; Liegle & Janicki, 2006). Researchers indicate as discussed by Rimmerman, S. L. (2005) that Kolb is the most cited author in the learning style literature with 49% of all documents in the ISI-based learning style file (349/172) citing Kolb at least once. For the quantitative part of the research, the Learning Style Inventory scale for the sampled students was used to identify their learning style. The first version of Kolb LSI

was developed in 1976. In this study researcher used the latest revised version of Kolb LSI which was revised in 2005.

The Interview Protocol: An interview protocol was developed by the researcher to explore the challenges and learning strategies of the students. The interview protocol was divided into four sections to gain information from every respondent. The questions included in the interview protocol were focused on the students of business administration from Virtual University. Students requested to expose the challenges which they faced in online system of education, in order to answer the first section of interview protocol. Students were asked to describe types of learning strategies which they used to overcome these challenges.

Students were further asked to talk about their learning style before starting online mode of education. Students were requested to talk about the learning strategies which they think that they can use to improve their learning in online system of education.

Quantitative Part of the Study

The first phase of this mix method study was quantitative, to identified different learning styles of sampled students by administrating KLSI. The quantitative phase of the study was conducted first, to get data for second phase (qualitative) of the study.

Table 1. Campus -Wise Sample Description of Sample VU students (N=149)

Campuses	Total number of student's	Percentage
Rawalpindi	40	26.67%
Islamabad	40	26.67%
Kahuta	30	20%
Gujar Khan	15	10%
Muzafrabad	24	16.67%
Total number of students	**149**	**100%**

The data was collected by the sample students from these campuses as shown in table with the number of students taken from these campuses.

Findings of Quantitative Part

Table 2. Learning style-Wise Sample Description of Sample VU students (N=149)

Categories	Total students	Visual	Auditory	kinesthetic
Learning Styles	149	50	5940	
Percentage	(100%)	(33.16%)	(40%)	(26.84%)

There are three basic learning styles and that are auditory, visual, kinesthetic. With the help of Kolb's LSI, the learning style of 149 students were identified by the researcher. According to the table 2 the number of visual learners of VU students were (n=50) from the total sample of (N=149) students, the total number of auditory learners of VU students were (n=59) and the total number of kinesthetic learners from VU students were (n=40) of the total sample. The percentage of auditory, visual and kinesthetic learners was as follow (33.16 %), (40%) and (23.33%) of the total percentage.

Qualitative Phase of the Study

Qualitative research methods, with their elasticity and an interpretative approach, enabled the researcher to explore the issues related to challenges and learning strategies of the students of VU, with respect to their learning styles.

The qualitative research deals with comprehensively understanding about the challenges and learning strategies used by the participants of the study. For this purpose, the process of interviewing students of business administration at Virtual University was started for getting in-depth information regarding challenges faced by the students in Virtual education and learning strategies used by the students to overcome these challenges. The researcher gained information to meet the last three objectives of the research.

The students of different learning styles were interviewed Total fifteen participants (N=15) purposively and conveniently selected, according to the availability of respondents from the total sample of (N=149), for qualitative part of the study.

Thematic analysis was used by the researcher for qualitative data analysis, open coding was performed and codes were manually assigned after thorough reading of the transcript again and again. Codes were categorized under sub themes. A qualitative analytic method for: 'identifying, analyzing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail. However, frequently it goes further than this, and interprets various aspects of the research topic (Braun and Clarke, 2006, p.79)

A summarized synopsis of students' challenges and learning strategies is presented below with respect to their learning styles to give a snapshot view of the major themes that were identified or that emerged from the qualitative analysis.

Table 3

Styles / Themes	Visual	Auditory	Kinesthetic
Challenges faced by students in Virtual Education at VU	Unfamiliarity Information overflow Access Unfamiliarity Difficulty in dealing with technology Networking	Unfamiliarity Information overflow Access Difficult to clear concepts New world Difference in online system of education Concentration Communication problems with course mates Absence of teachers Internet issues	Unfamiliarity Information overflow Access Coordination with teachers Difficulty in management of time in exams. Personal issues Difficulty to concentrate on lectures Difficulty in understanding lectures
Learning strategies used by students in Traditional education System	Difference in online system of education Novelty of the system Concept base education Lack of punctuality Absence of teachers Difficulty in understanding concepts Need to improve methods of teaching Easy examination system at VU	Difference in Virtual and traditional systems of education Access to the teachers Quick response from teachers Use different learning material Change in methods of teaching in VU	Less effort in regular system Presence of teachers Difference between online system of education Response from teacher Medium of instruction.

Learning Strategies used by Students in Virtual Education System	Help from campus honors Help from friends Help from senior students Help from internet Use of social media. Help from course mates	Making notes Concentration Use of internet Personal issues Use of social media Contact teachers through email Campus heads Learning Support Collaborative learning	Listen lectures carefully Help from campus heads Read handout Take help from students Take help from seniors Fulfill requirements of VLE Teaching methods Self-study Fulfill requirements of VLE Timing issues in exams Teaching methods Self-study
Suggested strategies by the students of VU	Collaborative learning, Availability of teacher Communication with teachers Focus on self-study Feedback of teachers regarding to tests Addition of examples in lectures Make lectures coherent Take help from seniors Consult books and lectures regularly Remove previous paper from internet	Teacher in each campus for guidance Handouts should be in detail to clear concepts Arrange classes in presence of teachers Understand things Easily in face-to-face contact with teachers Conduct weekly sessions with teachers Build confidence of students Get help from internet Presence of teachers at the spot	Take lectures properly Students should up to date their course Medium of instruction Understanding of Lectures is difficult Availability of teachers in class during lectures Use of slides Motivational strategies for students

The matrices show a comparison between the challenges and learning strategies used by the students of VU with respect to their learning styles, before and after entering and also suggestive learning strategies in virtual learning environment at VU. The challenges and learning strategies of the students of VU with respect to their learning styles were more or less the similar despite some variations. It was concluded through qualitative analysis that the challenges and learning strategies of all sampled students were same not due to difference in their learning styles but due to change in their mode of education from traditional system of education to virtual education system. The virtual learning environment due to its novelty for the students and due to the highlighted shortcomings of the system posed major challenges to all the students irrespective of their learning styles.

Discussion

The researcher discussed cumulative results of qualitative and quantitative analyses in order to formulate a comprehensive conclusion, while concentrating on the major objectives of the study. The researcher presented the conclusion of the study from the findings of the data according to the objectives of the study.

Learning Style of the Students of Virtual University

The first objective of the study deals with the identification of the learning styles preferences of business administration learners in online distance education system of Pakistan at VU. This researcher achieved this objective through quantitative part of the study. The students of VU (N =149) of the selected campuses (N=5) were administered KLSI (Kolb's Learning Style Inventory) in order to identify their learning style preferences. The findings of the quantitative part revealed that out of 149 students, 59 students were identified as visual learners, whereas 50 were auditory and 40 were kinesthetic learners. The percentage of visual, auditory and kinesthetic learners was 40%, 33.16% and 26.83% of the total sample. It means that majority of the students of Virtual University were visual and minimum proportion of sample was identified as kinesthetic learners.

Challenges Faced by Students in Virtual Education Environment

The challenges of the students of Virtual University, as discussed in other researches that online courses were more challenging and difficult Bork and Rucks (2013), were emerged after the analyses of qualitative data gathered from students are divided in three main groups. These groups of different type of learners (Visual, auditory and kinesthetic) identified by the researcher with the help of the quantitative data, which was gathered in first phase of the study. The number of (N=5) students from each learning group were selected for the interview to collect data for the second phase of the research which deals with the qualitative part of the research study. The challenges faced by the students of VU were further divided into three different categories to address the responses of learners from three different learning styles (Visual, auditory and kinesthetic).

Challenges faced by Visual Learners

The findings of the first section of interviews of respondents among visual learners exposed three major challenges regarding their learning styles, these major factors were "use of ICT, Availability of teacher, and lack of collaborative learning". The participant students gave their views towards the challenges for students at VU in online system of education and they all clearly discussed these challenges. Research related to the "difference between students preferred way of learning and material presented by the teachers for their learning" also confirmed, Gregoric (1985) that it is difficult or even impossible for the students to learn when

educators fail to present material in their preferred way. The students in VU came from traditional system of education and have different way of learning; in online system of education, they found challenges.

The Majority of the Participants talked about the use of ICT, their personal experiences about the use of ICT and causes of challenges regarding to their less awareness or less command on computers or use of ICT. They described challenges related to use of ICT with reference to their previous (traditional) and present (VU) environment of education, and shared challenges which they faced at VU. The researcher was helped by the students' experiences in facing challenges in online learning to gain information about all the challenges that the students faced at VU. The Majority of the participants discussed that they faced challenges while the using internet, computer, email, difficulty in online quiz, in online lectures.

Findings of the data showed the responses of the few participants discovered their previous learning experiences in (traditional) learning environment were also contributed as a challenge in virtual learning environment. As discussed in literature that online learners are usually concerned regarding the administration, teaching and learning approaches, and credibility of the academic credentials from online programs like traditional learners (Bocchi, Eastman, and Swift 2004). All respondents were agreed that the major reason of challenges at VU of student was less awareness about online system of education at VU.

Challenges faced by auditory learners

The results of the first part of the interview protocol of the respondents from auditory students exposed nine main challenges regarding to the learning styles of students at VU. The three key aspects that drawn from the results are difficulty in online learning, availability of teachers during lectures, difference between online distance education and regular system of education, difficulty in note taking, difficulty to concentrate on lectures, internet problems etc. The participant students viewed that these factors have put in to form challenges for the students at VU in online system of education and they all clearly discussed these challenges at different stages in detail. The participants discussed in detail that there is a lot of difference between online system of education at VU and regular system of education of Pakistan.

The analysis of views of the respondents discovered that previous learning environment of the learners was creating challenges for them. All respondents were agreed that the key factors of challenges at VU of because of unawareness among learners about online system of education at VU.

Challenges faced by Kinesthetic Learners

All the participants agreed that there is a lot of difference between online system of education at VU and regular system of education of Pakistan. All the respondents expressed different

viewpoint about the challenges which they faced in online system of education at VU. The Majority of the participants discussed about the difficulty to understand English (medium of instruction in online education), the participants were used to the Urdu (medium of instruction in traditional system of education of Pakistan). Almost all the respondents claimed that they face difficulty in coordination with teachers and classmates in online system of education. These challenges occurred due to change in the mode of education of the participants as from traditional to online system of education at VU. Web-based environments offer flexible access to education and are more responsive to students' needs; however, they fail to address other sources of student diversity (Sheard and Lynch 2003).

The Majority respondents discussed that they faced mostly challenges related to the difficulty in asking queries from teachers. The different types of learners from auditory, visual and kinesthetic faced challenges regarding to the online system of education at VU. Mostly students discussed that they faced challenges related to the absence of the physical availability of teachers. This conclusion regarding to the challenges of online students is also supported by a number of research studies, Diaz (2001), Swan (2002), Palloff and Pratt (2005) Blackmore (1996), Gun Awardena (1995), Levy (2007), Muller, 2008 Park & Choi (2009).

The findings of first part of interviews of respondent's kinesthetic learners exposed challenges regarding to the learning styles of students at VU. The three main factors that came out as a result of analysis are self-study, problem solving issues; absence of teachers during lectures. The respondents discussed about the difference in online education, difficulty to understand English (medium of instruction in online education), difficulty in coordination with teachers and classmates, difficulty in asking queries from teacher's difficulty to manage time in exams etc. In online system of education time management is the key concern for learners as they have to cope with classes, work, and social commitments (McEwen 2001).

The participant students also talked about that these aspects were challenging for the students at VU in online system of education and they all clearly discussed these challenges at different stages in detail. There are also similar research studies, found that students faced challenges in online learning environment when they came from traditional system of education as revealed by the researchers in Howland and Moore (2002), Heaton-Shrestha, Gipps, Summers, Waigandt and Whittaker (2005), Edirisingha and Linsey (2007).

It was concluded by the comparison of the challenges of three types of learners, which were visual, auditory and kinesthetic that their challenges were more or less same. All the participants discussed similar challenges.

Learning Strategies Used by Students in Virtual Education System

In this section the researcher described the learning strategies used by online (Virtual) learners to overcome the challenges which they discussed earlier, according to the sample students'

perspective respectively. The learning strategies used by Virtual learners with three different learning styles (Visual, auditory and kinesthetic) emerged after the analyses of qualitative data gathered from the sample students from three different types of learners. The sample students for qualitative data were divided into three main categories. These categories further elaborate different types of learning strategies used by each category. These three main categories are Learning strategies used by auditory learners, Learning strategies used by visual learners and Learning strategies used by kinesthetic learners.

Learning Strategies Used by Visual Learners

The learning strategies used by the visual learners were in detail, all the participants discussed that the online mode of education was new for them and they found this system of education very challenging, the participants shared their experiences in virtual education and discussed different learning strategies which they used to fit themselves in the online mode of education.

The participants discussed that they took help in different learning strategies to overcome the challenges in virtual education. All interviewee (visual students) expressed different viewpoint about learning strategies used by the sample students to overcome the challenges. Their point of views is described in detail as follows:

All the participants were agreed upon it absence of teachers during lectures in class in Virtual University and it was a main challenge faced by visual learners in online system of education. In addition majority of the students were unfamiliar to this system of education. Moreover, about Majority participants explained that they are fail to get help in class from the teachers also a challenge because of absence of teachers in the class. Especially, as students were used to the presence of teachers in the classroom in the regular system of education of Pakistan (their prior system of education).

The visual learners discussed these strategies in detail which they used to overcome the challenges which they faced in online system of education. The Majority participants discussed these strategies e.g., help from campus owners, and help from friends, help through internet and books, use of different software's and use of social media, found their course mates to discuss their problems, etc. There are different strategies narrated by students that are related to overcome challenges. Majority of the student were of opinion that absence of teachers is a problem for visual learners, they stated that course and online system of education is difficult for students. Most of the students responded that they usually felt that they came on a new planet where everything is unfamiliar to them. There further add that there are many strategies for it which they used to make this system of education familiarizes to them e.g., access their teachers, found their classmates, formation of groups etc.

Moreover, few students narrated that there is a lack of proper guidance in VU to settle in this new system of education. According to Majority respondents the online system of education is

difficult for students. Almost all the participants of visual learners have to face difficulty in adjustment of a new system of education.

All participants were agreed upon that, visual learners have to use different strategies to cope the challenges which they faced in online learning environment. Almost Few participants were agreed upon it that they took help from their campus owner which was the main strategy used by them.

Learning Strategies Used by Auditory Learners

The learning strategies used by the auditory learners were in detail, the participants discussed that the online mode of education was new for them and they found this system of education very challenging, the participants shared their experiences in virtual education and discussed different learning strategies which they used to fit themselves in the online mode of education. The participants discussed that they took help in different learning strategies to overcome the challenges in virtual education. All interviewee (visual students) expressed different viewpoint about learning strategies used by the sample students to overcome the challenges. Their point of views is described in detail as follows:

The participants from auditory group of learners defined the following learning strategies which they used to overcome the challenges which they faced at VU. These learning strategies are e.g., making notes, concentration, use of social media, campus heads, learning support, collaborative learning etc.

The auditory learners used these strategies to overcome the challenges. Majority of auditory learners were agreed upon these strategies. About few students respond that they usually felt that they came on a new planet where everything is unfamiliar to them. The participants from kinesthetic learners mostly talk about the use of social media like face book for the sake of communication with their classmates to overcome their challenges, almost few respondents from auditory learners discussed about the use of face book under the discussion of learning strategies.

Learning Strategies Used by Kinesthetic Learners

The learning strategies used by the auditory learners were in detail, the participants discussed that the online mode of education was new for them and they found this system of education very challenging, the participants shared their experiences in virtual education and discussed different learning strategies which they used to fit themselves in the online mode of education.

The participants from auditory group of learners defined the following learning strategies which they used to overcome the challenges which they faced at VU. These learning strategies are e.g., making notes, Concentration, Use of social media, Campus heads, extra classes,

Collaborative learning etc. The auditory learners used these strategies to overcome the challenges, Majority of the auditory learners were agreed upon these strategies. Few students respond that they usually felt that they came on a new planet where everything is unfamiliar to them. The participants from kinesthetic learners mostly talk about the use of social media like face book for the sake of communication with their course mates and seniors to improve their learning and to solve their challenges.

The participants discussed almost similar strategies which they were used in online system of education at VU, with respect to their learning styles. However, there were few participants who shared difference in their strategies according to their knowledge and information about online system of education.

The students with respect to their different learning styles discussed about strategies which they used in virtual learning environment at VU. Students used different strategies for effective learning as similar concluded by the other researchers, Mc Loughlin and Marshall (2000)

Learning Strategies of the Participants in Traditional Education System

The third section of the in-depth interview, which deals with the qualitative part of the entire research study focused to explore the learning style of the participants earlier than the online system of education. The purpose of this section in the interview was to know about the learning strategies of participants before entering in the online system of education, to know that how they felt the online system of education challenging for them with reference to their learning style. The learning strategies used by students of virtual university before entering in the online system of education was further divided into three different categories to address the responses of learners having three different learning styles (visual, auditory and kinesthetic). These three main categories are as follows:

- Learning strategies of visual learners in Traditional System of Education
- Learning strategies of auditory learners in Traditional System of Education
- Learning strategies of kinesthetic learners in Traditional System of Education

Learning strategies of visual learners in traditional system of education

The respondents explained in detail and talked about the strategies which they used in their previous system of education as compared to VU. The majority of the visual learners stated that they found difference between online education system and traditional system of education with respect to the student regularity and punctuality. They discussed that in traditional system of education of Pakistan they were regular and punctual, but in virtual system of education which provides a flexible time schedule, students can avail the learning resources whenever and wherever they want to study. The majority of the participants argued that they were used

to a study routine in traditional system of education, whereas in the virtual education system they need to according to the new online system of education.

The few participants also discussed that they found many things problematic in online system of education as compare to their previous system of education. They discussed that in online system of education, there is no presence of teacher in class during lectures which was totally opposite to their prior educational environment.

The participants discussed in detail that they found hard to adjust themselves in online system of education, as there were a lot of dissimilarities in online system of education and the previous education system of the participants, as stated by a participant in this statement. Majority of the participants from visual group told that they found VU an unusual and different place of their academic world.

The majority of the visual learners also compared their previous educational experience with the online system of education in terms of their exams in online system of education and according to their point of view; they found examination system easy as compare to the traditional system of education in Pakistan.

Learning strategies of auditory learners in traditional system of education

The auditory learners of VU also talked about their learning style prior to the VU. Few participants discussed that they were used to perform different activities according to their learning needs in the traditional education system of Pakistan. The Majority of the participant discussed thoroughly that before entering in online system of education they were used to make notes, through internet and with the discussion of friends. They were habitually performed these activities because these activities were the demand of their previous educational system.

The participants from auditory learners like visual learners also compared the difference of their previous system of education and their entire system of education which was the online system of education.

The majority auditory learners also remark on the difference between traditional system of education in Pakistan and online system of education at VU where they were enrolled. The All the participants told that they were able to easily access their teachers in their prior system of education as compare to the online system of education.

The participants discussed that in online system of education video lectures were delivered and students found hard to understand things. The Majority participants discussed that in online system of education mostly they felt bored during lectures and to understand lectures students need to listen recorded lectures again and again.

The participants also discussed that in online system of education VU has its own books and handouts, the participants also confer that they save lectures and try to understand these lectures later on. The participants compare the learning system of prior system of education and the learning system of online system of education. The Majority participants thrash out about the learning environment in online system of education thoroughly and told that they were failed to get answers of their questions in online system of education.

Learning strategies of kinesthetic learners in traditional system of education

Kinesthetic learners also throw light on their prior learning styles as visual and auditory learners. The participants also discussed the traditional system of education and also compare both of the systems of education.

Majority of the participants discussed that they felt easy in learning their prior system of education as compared to the online system of education. All the participants discussed that in online system of education; they have to self-study and complete every task individually by themselves or they found out solutions with the help of internet.

The participants said that the medium of instruction in online system of education is in English, participants discussed that they were not good in English and faced many difficulties to understand lectures and found difficult to ask questions from their teachers. Majority of the participants argued that in Urdu (National Language of Pakistan) they can easily communicate with their teachers. English language creates problem for virtual learners or the students learns in online education. Students' writing skills, and their facility with the English language, have an effect on not only the quality but also the quantity of online interactions (Peters).

Participants from kinesthetic group of learners discussed that there is nothing common in traditional system of education of Pakistan and online system of education of VU. The both the system of education is quite different and changed from each other. Majority of the participants discussed that if they were failed to listen a lecture at VU then it creates difficulty for them later to copy that lecture and prepare it. All participants also thrash out that in online system of education students are self-dependent and they have to perform each task by themselves.

All the Participants from kinesthetic learners discussed the difference between online system of education and traditional system of education of Pakistan in detail and talked about the difficulties and challenges of online system of education. The Majority participants also discussed about the communication problems and medium of instruction in online system of education, as it was altered from traditional system of education.

Learning strategies which were used by the students of Virtual University, before entering in online system of education as the students were studying in traditional system of education in Pakistan, were more or less same as the students have a similar mode of education.

All the students of Virtual University having three different learning styles (auditory, visual and kinesthetic) discussed in detail the learning strategies which they used to overcome the challenges, they face din online learning environment. There are also other research studies which discussed about learning strategies used by online students, as discussed by researchers Howland and Moore (2002), Huber and Lowry (2003). There are also some research studies which discussed about appropriate support strategies should be provided to students with different learning styles and online course design should be adopted to accommodate diverse styles when designing e-learning environments as mentioned by Graf, Kinshuk and Liu (2009), Akdemir and Koszalka (2008), Maddux, Ewing-Taylor and Johnson (2002), Felder (1996) , Kramer-Koehler, Tooney, Sheard and Lynch (2003).

Suggested Learning Strategies of VU Students to Improve their Learning

The sampled VU student participants for the qualitative part of the research also discussed about the different suggested strategies which they used to improve their learning in the virtual system of education.

This section of the qualitative part of the research deals with the suggestions of online learners for the improvement of their learning. The learning strategies used by virtual learners before entering in the online system of education was further divided into three different categories to address the responses of learners from three different learning styles (Visual, auditory and kinesthetic)

These three main categories are as follows:

- Suggested strategies of Visual learners
- Suggested strategies of auditory learners
- Suggested strategies of kinesthetic learners

The strategies enlisted by the respondents from the sample students of visual, auditory and kinesthetic learners are as follows:

Suggested learning strategies of visual learners to improve learning

In this part of the qualitative study, the number of participants selected conveniently from the visual group (n= 60) for the interviews was five. Therefore, five visual participants were selected for in-depth interview from the sixty visual learners of virtual education. The first part of qualitative study discussed the challenges faced by the students in virtual education. These five participants possessed visual learning styles and all of them were interview individually according to their availability.

According to the interviewed data of fourth part of the qualitative part of study from the participants three main themes were formed by the researcher. The further discussion of the participants or the codes under these themes was sixteen in number, in this part of the interview the participants discussed about the strategies which they can use to improve their learning in online system of education at VU. The participants confer about the strategies which they can use in online learning system of education, students discussed in detail that how can improve their learning. The participants from visual learners discussed that they can trounce the challenges and difficulties which they faced at VU in online system of education. The strategies discussed by the visual learners for the improvement of their learning in virtual learning environment at VU are as Presence of teachers, collaborative learning, communication with teachers, self-study , make possible to the excess of examples in lectures for clearing concepts, topics should be interrelate Consult books and lectures, take help from seniors, take lectures and handouts regularly, return of quizzes, remove previous paper from internet, these papers reserves students' minds, so that Students can search more things to enhance their knowledge. Supporting researches concluded that providing ample opportunity for student-to-student and student-to-teacher interactions in online courses is suggested by Howland and Moore (2002). The interactions, however, need to be carefully managed to reduce the communication challenges often faced by online instructors Boettcher (2003); Shimabukuro (1999). Thiele (2003) observes that prompt feedback and initiation of communication with learners is vital and must be considered part of the time commitment of online instructors.

Suggested learning strategies of auditory learners to improve learning

The participants from auditory learners provide many strategies to improve their learning in virtual learning environment. The participants discussed in detail that they can improve their learning and can fit themselves in virtual learning environment. These learning strategies are teachers should be teachers in each campus for guidelines, handouts should be in details so that it makes things easy to understand, if possible then arrange some classes for students in campus in presence of teachers so that students should understand, face to face connection with our teachers to understand things easily, conduct weekly sessions with the teachers in campus, interaction with teachers to build our confidence, presence of teachers at the spot to clear concepts, communication of learners with the teachers.

Suggested learning strategies of kinesthetic learners to improve learning

The participants from kinesthetic learners provide many strategies to improve their learning in virtual learning environment. The participants discussed in detail that they can improve their learning and can fit themselves in virtual learning environment. These learning strategies are take online lectures properly, up to date to course, focus on Urdu language during lectures for better understanding, to understand lectures we need to listen them 3 or 4 time then able to understand anything because of English, teachers should be available in campus at least 3 or 4

time in a week, teachers should be physically present at campus, availability of teachers in class during lectures, use of slides can improve learning, use of motivational strategies for students at VU.

Learning strategies for the improvement of learning, by the students of VU were more or less same as they faced almost same challenges in online mode of education at Virtual University.

There are also some supportive researches with also suggested these types of strategies to improve the learning of the students of VU are El Mansour and Mupinga (2007), and Soles and Moller (2001).

Limitations and Suggestions

As discussed in previous chapters, the entire study was a two-phase study. The first phase deals with the learning styles of the sample students. The learning styles of 149 students of VU were identified quantitatively. The second phase consists of qualitative section of the study, deals with challenges and learning strategies used by the students to overcome these challenges.

It was not possible for the researcher to select sample randomly from the target population i.e., campuses of Virtual University located in Islamabad, Rawalpindi, Gujar Khan, Khauta, and Muzafrabad, because of the time and money constraints. Therefore, the researcher selected convenience and purposive sampling technique for the study.

The total number of (N=149) students were selected for first part of the study which was based on quantitative method from five different campuses of Virtual University. The participants for the second phase of the study which was based on qualitative method of the research, sample students were selected to explore their challenges they faced, and learning strategies they used to overcome the challenges in online learning environment at VU.

The study was delimited to the students of business administration of the campuses of Virtual University located in Islamabad, Rawalpindi, Gujar Khan, Khauta, and Muzafrabad.

The last limitation is about types of educational institutions as according to Chohan (2011) there are only three types of institutions in Pakistan, i.e., Deeni Madaris, public schools and private schools, in Virtual University students basically came from these three different institutes of Pakistan.

This study was on the topic of learning styles of the students of VU in Pakistan, in which the learning styles of the students of business administration of VU were identified with reference to the challenges which they faced in VU and learning strategies used by the students to overcome these challenges.

The results of this study also focused that a researcher can conduct studies which focus gender differences of the VU students with reference to their learning styles. The future researcher can also conduct a study in another discipline of education except business administration with reference to the learning styles of the students of VU. This study explored these issues but more discoveries are needed in this area. Furthermore, evaluation criteria of students who want to enroll in Virtual University could be explore in future researches.

Conclusion

In this research, the researcher identified the learning styles of the students of Virtual University through a quantitative analysis, and studied the challenges faced by them in the virtual learning environment through a qualitative thematic analysis. The study also explored the learning strategies that students adopted to navigate the virtual education system in order to cope with their challenges.

Felder and Soloman (2000) also opine that people tend to share at least some of the characteristics from each learning style. It may be that some of the students have all the three types of learning styles but one of the learning styles is dominant and practiced by a learner. Every student with different learning style learns in different ways by using different learning strategies as discussed by students of virtual education.

In the qualitative phase, the thematic analysis was conducted which showed that all the sampled students faced more or less the same academic challenges irrespective of their learning styles. It was deduced from the student responses that the challenges faced by them were mostly attributed to the novelty of studying in a virtual learning environment where they were trying to get accustomed to the online mechanism of virtual education. There are a lot of challenges faced by the students in VU, which were explored in this study, on the basis of that the researcher has concluded that every student having any type of learning style i.e. auditory, visual or kinesthetic, in Virtual University facing challenges due to change in mode of education from traditional to online system of education.

It is also concluded in this study that students having different learning styles used diverse yet almost similar learning strategies to overcome their academic challenges, familiarize them with technology, and make them capable to fit in the new mode of education at VU. It is also concluded in this study while exploring the suggestive learning strategies used by the students, that the challenges of virtual system of education at VU can be overcome and reduced by implementing the learning strategies by the students.

Every student is different from the other students. The students have different types of learning styles. It is concluded in this study that every student have different type of learning style and they faced challenges in online system of education at VU. The students faced challenges in Virtual University, while they are belonging to anyone of the learning style from auditory,

visual and kinesthetic, due to change in their mode of education as they came from traditional system of education into the online system of education at VU. It is also concluded in this study that the challenges of the students of VU can be reduced by providing them knowledge related to technology and online mode of education at VU.

REFERENCES

Alper, Y. G. A. (2004).Learning Preferences and Learning Styles of Online Adult Learners. *International Education Journal*, *4*(4).

Bartle, R.A. (2003). Designing Virtual Worlds, USA: New Riders.

Bocchi, J., Eastman, J. K., & Swift, C. O. (2004).Retaining the online learner: Profile of students in an online MBA program and implications for teaching them. *Journal of Education for Business*, *79*(4), 245-253.

Bork, R. J. H., & Rucks-Ahidiana, Z. (2013). Role ambiguity in online courses: An analysis of student and instructor expectations.

Creswell, John W (2003) .Research design: Qualitative, quantitative, and mixed method approaches   by John Creswel1.2nded

Diaz, D. P., &Cartnal, R. B. (1999). Students' learning styles in two classes: Online distance learning and equivalent on-campus. *College teaching*, *47*(4), 130-135.

Dunn, R. (1990). Rita Dunn answers questions on learning styles. *Educational Leadership, 48*, 1519.

El Mansour, B., & Mupinga, D. M. (2007).STUDENTS'POSITIVE AND NEGATIVE EXPERIENCES IN HYBRID AND ONLINE CLASSES.College student journal, 41(1), 242.

Fahy, P. J. (1985). Introducing Individualization with Computer-Managed Learning: An Example from Adult Basic Education.

Felder, R. M. (1996). Matters of style.ASEE prism, 6(4), 18-23.

Graf, S., Lan, C. H., Liu, T. C., &Kinshuk, K. (2009, July). Investigations about the effects and effectiveness of adaptivity for students with different learning styles.In Advanced Learning Technologies, 2009.ICALT 2009. Ninth IEEE International Conference on (pp. 415-419). IEEE.

Heaton-Shrestha, C., Gipps, C., Edirisingha, P., & Linsey, T. (2007). Learning and e-learning in HE: the relationship between student learning style and VLE use. Research Papers in Education, 22(4), 443-464.

Howland, J. L., & Moore, J. L. (2002).Student perceptions as distance learners in Internet-based courses. Distance education, 23(2), 183-195

Huber, H. E., & Lowry, J. C. (2003).Meeting the needs of consumers: Lessons from postsecondary environments. New Directions for Adult and Continuing Education, 2003(100), 79-88.

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development.

Kramer-Koehler, P., Tooney, N. M., &Beke, D. P. (1995, November).The use of learning style innovations to improve retention.In Frontiers in Education Conference, 1995.Proceedings., 1995 (Vol. 2, pp. 4a2-5). IEEE.

Maddux, C. D., Johnson, D. L., & Ewing-Taylor, J. (2002). Distance education: Issues and concerns. Haworth Press, Inc..

McEwen, B. C. 2001. Web-assisted and online learning. *Business Communication Quarterly* 64 (2): 98–103.

McLoughlin, C., & Marshall, L. (2000, February). Scaffolding: A model for learner support in an online teaching environment. In Flexible futures in tertiary teaching. Proceedings of the 9th Annual Teaching Learning Forum(Vol. 2, No. 4).

Moller, L., & Soles, C. (2001).Myers Briggs type preferences in distance learning education.International Journal of Educational Technology, 2(2).

Reddy, T. Researching Trauma Narratives: An Investigation of Researchers' Experiences of the Research Process.

Rimmerman, S. L. (2005). *Personality Types and Learning Styles: An Investigation of Their Influence on Performance in a Distance Education Environment* (Doctoral dissertation, The University of West Florida).

Sheard, J., & Lynch, J. (2003). Challenges of web-based learning environments: are we student-centredenuf?.In *Advances in Web-Based Learning-ICWL 2003* (pp. 1-11).Springer Berlin Heidelberg.

Sheard, J., & Lynch, J. (2003). Challenges of web-based learning environments: are we student-centredenuf?.In Advances in Web-Based Learning-ICWL 2003 (pp. 1-11).Springer Berlin Heidelberg.

Silver, H.F., Strong, R.W & Perini, M.J. (1997).Integrating Learning Styles andThiele, J. E. (2003). Learning patterns of online students. *Journal of Nursing Education, 42* (8), 364–367.