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THE IMPACT OF UNIVERSITY TEACHERS' QUALIFICATION ON STUDENTS' CLASS PERFORMANCE: EMPIRICAL EVIDENCE FROM A PUBLIC SECTOR UNIVERSITY OF PAKISTAN

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ABSTRACT

This research investigates the impact of teachers' qualification on students' class performance at university level in Pakistan. The HEC of Pakistan initiated programs to enhance teachers' qualifications such as M.Phil./MS and PhD to improve quality education and to develop students' skills as per job market needs. To know the worth of these initiatives, the authors designed a descriptive survey with quantitative research method to answer the central research question. A survey Questionnaire on Assessing University Students' Class Performance (QAUSCP) was designed after reviewing related instruments and then it was pilot tested and found reliable with overall Cronbach's Alpha = .874. This study uses a purposive sampling technique and by using G-power the sample size determined was 380 at confidence level of 99%. However, the respondents (students) who were taught by Masters/16year, M.Phil./MS and PhD qualified teachers gave responses of all 400 questionnaires separately distributed to them in different classes of different programs and departments of the University of Sindh, Pakistan. The data collected were analyzed through IBM SPSS software Version 25 and descriptive statistics, frequency analysis, comparative mean, paired-samples t-test and Logistic regression techniques were applied to find the results. The findings of this investigation reveal that the teachers' higher qualification had a significant positive impact on students' class performance. In class, M.Phil./MS and PhD qualified teachers helped students to develop better skills than Masters/16-year qualified teachers. In the end, the authors of this paper put forward that future research should be carried on Competency Based Education (CBE).

Keywords: Teachers qualification, students' class performance, public sector university, Pakistan

INTRODUCTION

It is argued in Accenture (2020) that the rapid technological progress has created economic opportunities so if the pace of workforce skill development does not match with technological progress then economies would lose trillions of dollars. It further suggests that future workers would require a variety of skills, so it is need of an hour to build their full set of skills ranging from creative competencies to cognitive abilities. Today, the job market and employers demand students to have a set of skills that help them work better in dynamic world. However, there is huge gap between students' skills produced and students' skills demanded in job market (Burner, Supinski, Zhu, Robinson & Supinski, 2019). Consequently, now it is

expected from universities and colleges to prepare students' skills according to the needs of job market (Educause Review, 2020).

For developing country like Pakistan quality of higher education has been a big challenge. Pakistan education system is divided into primary, secondary, higher secondary and university level. According to Hoodbhoy (2009), at the time of Independence in 1947, Pakistan was educationally backward from India, it had only one teaching university, the University of Punjab where limited students 664 were enrolled and it lost best teachers those were Hindus and moved to India after Partition. However, at that time University of Sindh also formally existed but as an examining body and as a full-fledged teaching university it started when it was relocated from Karachi to Hyderabad in 1951. To provide quality higher education Universities Grants Commission (UGC) was established which was later replaced by Higher Education Commission (HEC) through HEC Act 2002. HEC is taking multiple measures to transform Pakistan's agriculture-based economy into knowledge-based economy. This change is impossible without quality of education and quality of education is impossible without the quality of teachers and that requires that the teachers should have higher academic qualification (Hoodbhoy, 2009). Hoodbhoy narrates that a teacher is the critical factor for the students' performance and achievement. This author further argues that a poor or better performance of students depends on the quality of teachers. However, teachers' quality can be result of higher qualification, training, experience, or any other factor. The author Kazi (2008) argued that teachers who are highly qualified like PhD holders know almost everything about one specific thing so they should teach students in the universities.

Students' performance is one of the parameters to measure the quality teaching at university level. More qualified teachers result students' greater academic achievement and subject knowledge (Ibe, Nworgu & Anyaegbunam, 2016). The students' performance at university level includes students' academic performance, i.e., CGPA, class performance, their subject knowledge and other skills. University teachers' qualification means master's or 16-year, M.Phil. or MS, PhD and Post-doctorate. Master's or 16- year degree level is the requirement for appointing new teachers in university. Higher Education Commission (2011) took initiatives to boost the quality of teaching and research in public sector universities and to improve the quality of teachers. In this regard, HEC launched various programs to improve university teachers' pedagogical skills and higher qualifications. The HEC launched Medium Term Development Framework (MTDF-I, 2005-10, & MTDF-II, 2010-2015) with strategic aims of faculty development, improving access to higher education, promoting excellence in learning and research as per national needs and building skills for leadership, governance and management. In these programs, faculty development was identified as core aim and it was realized that quality in teaching and research cannot be achieved without having highly qualified teachers. To achieve this aim and to overcome qualification shortcomings, HEC launched local and foreign MS and PhD scholarship programs, split

PhD programs, post-doctoral fellowships and indigenous scholarship programs. These all HEC initiatives reflect the importance and focus on higher qualification for faculty development. Currently, Pakistan has 183 universities or degree awarding higher education institutions including 108 public universities and 75 private universities (Taylor, 2017).

According to the University of Sindh (2020a) data in Prospectus-2021 that University of Sindh, Pakistan is one of the second oldest and largest universities in Pakistan, after Punjab University. The University of Sindh has 9 faculties, 56 departments and around 32000 students are enrolled in various degree programs of bachelor's, master's M.Phil./MS and PhD (University of Sindh, 2020b). Besides, around 800 teachers including PhD and Non-PhD are teaching students at different levels. To improve university ranking in HEC ranking list and to promote research culture and teaching quality Sindh University with support of HEC is sending its teachers on indigenous & foreign Scholarships for higher qualification like M.Phil. /MS and PhD. The higher qualification on one hand is the criteria for teachers' promotion as well as teachers' own performance in teaching and research. But on other and very important hand teachers having higher qualification may have better skills such as subject knowledge, communication, technological, research etc. and may impact on students' class performance that is in developing same skills such as subject knowledge, communication and research etc.

RESEARCH PROBLEM STATEMENT

To develop the students' marketable skills required in current and future, the educational institutions must take efforts to equip students with pertinent knowledge and mandatory skills (Fain, 2019). The World Economic Forum (2018) reasoned that because of industrial revolution, the increased boom of technology, computers and machines across all industries impacted workplace dynamics and that has broadened skills gap. Now, the challenge has augmented for higher education institutes and universities to prepare students about skills that employers require now and in future (Educause Review, 2020). However, in developing students' better market-oriented skills, the role of teacher is important. The authors argue that the effectiveness of teachers' teaching in classroom depends on the teachers' higher qualification, competence and other characteristics that can impact on the students' academic performance, subject knowledge and skills (Ibe et al., 2016; Lucky & Yusoff, 2013). On the status of education in Pakistan, Taylor (2017) in the policy document HEC Vision- 2025 discusses that due to shortage of qualified teachers in the universities is the greatest challenge to the quality higher education in Pakistan. To transform Pakistan's traditional economy into knowledge-based economy requires quality of education and quality of education seems impossible without teachers' quality which depends on teachers' higher academic qualifications (Hoodbhoy, 2009). To fill the gap of high qualified teachers and to ensure quality education, the Higher Education Commission (HEC) Pakistan launched various faculty development programs such as local and

foreign MS and PhD scholarship programs, split PhD programs, post-doctoral fellowships and indigenous scholarship programs (Higher Education Commission, 2011). To know the worth of these initiatives and value of heavy investment in higher qualification of teachers and to investigate the impact of teachers' higher qualification on students' class performance, the authors of this paper have identified a gap as less empirical evidence exist in this context at university level. To answer research question, the authors of this paper undertake this study in University of Sindh which is second oldest and largest university of Pakistan.

PURPOSE OF THE STUDY

The purpose of this research is to investigate the impact of teachers' qualification such as Master's/16-year, M.Phil./MS and PhD on students' class performance at university level. This study also aims to determine the extent to which teachers' qualification influence on students' in improving various skills, such as subject knowledge, execution, critical thinking, communication, problem-solving, research and technological skills.

RESEARCH QUESTION

Based on research problem, the central research question raised for this study is:

Does teacher qualification (Master's/16-year, M.Phil./MS and PhD) matter?

If so the extent by which does it affect the students' class performance?

LITERATURE REVIEW

A research study on the influence of teachers' characteristics on academic achievement of secondary Biology students in Nigeria by Ibe et al.(2016) found that teachers' qualification matters, students taught by more qualified teachers (such as M.Ed. qualified) performed better than those who were taught by less qualified teachers (such as certificate/diploma holders and B.Ed./BSc qualified). In the investigation, the results witnessed that students who were taught by more qualified professional teachers like having B.Ed., B.A., Ed., B.Sc. Ed, M.Ed., M.A.Ed., M.Sc. Ed. and PhD had a good academic performance than those who were taught by low qualified professional teachers (Yusuf & Dada, 2016). The findings of the research studies by Akiri (2013) and Boyd, Lankford, Loeb, Rockoff and Wyckoff (2008) showed that students' improvement or better performance in academic score was because of teachers' higher qualification. The studies of authors evidenced that teachers' qualification have significant implications on the students' academic performance and outcome (Kola & Sunday, 2015; Zuzovsky, 2003). The research study concluded that poor pedagogical skills and content knowledge of teachers caused the poor academic performance of students (Ogundele, Olanipekun & Aina, 2014).

The research findings of Abe (2014) stated that a significant difference existed in the performance of students in subject Mathematics when taught by high professionally qualified teachers

than low professionally qualified teachers. The authors of multiple studies revealed that the falling standard of Nigerian Universities education is because the teachers did not possess the required characteristics and competence (Benjamin & Syuhaily, 2011; Lucky & Yusoff, 2013; Ogbonnaya & Osiki, 2007). These findings further argued that the teachers who possessed higher qualifications teach effectively in classroom and students perform better, on other hand, teachers who possessed lower qualifications teach less effectively and students perform poorly. They concluded that university lecturers who possessed required qualification, right characteristics and adequate competence were effective in teaching than those who lacked these attributes. Subsequently, significant difference existed in the performance of students taught by more qualified and less qualified teachers.

The evidence of the authors' investigations showed that a positive relationship existed between teachers' higher qualification and students' performance in further Mathematics among secondary school students (Aliyu, Yashe & Adeyeye, 2013; Vogt, 2001). The research outcome of Owolabiand Adedayo (2012) witnessed that the students' low performance in Physics is due to teachers' low qualification. In other research studies, the authors revealed that teachers are important factors for students learning and teachers' qualification matters in teachers' effectiveness and students' achievement (Aaronson, Barrow & Sander, 2003; Kane, Rockoff & Staiger, 2006; Rockoff, 2004). The research study of Boyd et al. (2008) in context with No Child Left Behind (NCLB) Act 2001 of America, stated that the improvement in the qualification of teachers particularly in poor schools positively impacted the improvement in students' performance. The investigations of some authors evidenced that there is a positive relationship between teachers' qualification and students' performance and further explored that a significant difference existed among the performance of students taught by less qualified and high qualified teachers (Akiri, 2013; Fred & TAMALE, 2013).

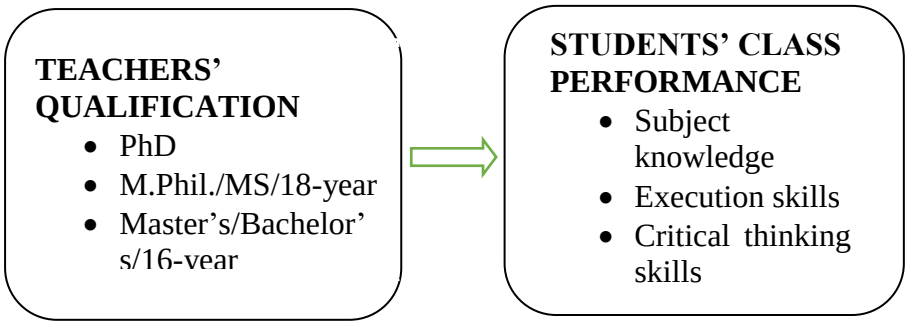

FIGURE-1
THE CONCEPTUAL FRAME WORK TEACHERS' QUALIFICATIONS AND STUDENTS' CLASS PERFORMANCE

In Figure 1, the model shows the impact of teachers' qualification (independent variable) on students' class performance (dependent variable). Teachers' qualification includes PhD, M.Phil./

MS and Master's/Bachelor's/16-year. Students' class performance refers students' various skills, such as subject knowledge/ acquisition skills, execution skills, critical thinking skills, communication skills, problem-solving skills, research skills and technological skills

HYPOTHESES

Main Hypothesis (M-H): Teachers' qualification has significant positive impact on students' class performance. The main hypothesis is sub-categorized into the following seven sub-hypotheses (represented by Sub_H).

Sub-H1: Teachers' qualification has significant positive impact on students' subject knowledge.

Sub-H2: Teachers' qualification has significant positive impact on students' execution skills.

Sub-H3: Teachers' qualification has significant positive impact on students' critical thinking skills.

Sub-H4: Teachers' qualification has significant positive impact on students' communication skills.

Sub-H5: Teachers' qualification has significant positive impact on students' problem-solving skills.

Sub-H6: Teachers' qualification has significant positive impact on students' research skills.

Sub-H7: Teachers' qualification has significant positive impact on students' technological skills.

RESEARCH METHODOLOGY

Based on the core objective and central research question the authors of this paper have carefully chosen quantitative research method with descriptive survey approach. In research design for this study, the authors after reviewing relevant past questionnaires designed survey instrument to collect data for testing hypotheses and to answer the research question. Furthermore, this research used purposive sampling technique to collect the data from students at the University of Sindh.

Participants

The participants of this study consisted of students who were enrolled in Bachelor's, Master's and M.Phil./MS degree programs in various disciplines at University of Sindh and they were taught by teachers who had different qualifications, such as Master's/16-year, M.Phil./MS and PhD. The total number of students enrolled in various programs at University of Sindh was almost 32300 students (University of Sindh, 2020b). By using G-power our data sample size determined is 380 at confidence level of 99%. However, we distributed 400 questionnaires to students separately who were taught by teachers with different qualifications and got all responses.

Data Collection Instrument

The primary quantitative data was collected through a survey questionnaire from the students. For this purpose, a survey Questionnaire on Assessing University Students' Class Performance (QAUSCP) was developed after reviewing relevant past survey

questionnaires such as National Survey of Student Engagement (NSSE) by the trustees of Indiana University (2016) and used by universities in USA, Canada and Australia, Course Experience Questionnaire (CEQ) used by Curtin University (2015), and questionnaire evaluating teaching competencies in the university environment by (Moreno-Murcia, Silveira Torregrosa & Belando Pedreño, 2015). In consultation with academicians and research experts our instrument consisted of seven constructs and 31 close ended questions. The items were rated on 5-point Likert scale ranging from 1 to 5 labeled as 1= strongly disagree, 2= disagree, 3= neither agree nor disagree, 4= Agree and 5= strongly agree to measure students' class performance or skills (i.e., subject knowledge, execution skills, critical thinking skills, communication skills, problem solving skills, research skills, technological skills). The questionnaire also included one open ended question for additional comments of students regarding their class performance. Before administering, the instrument was pilot tested to check reliability, and the instrument was found reliable with overall reliability Cronbach's Alpha = .874. The items of the constructs included in our questionnaire are given in appendix.

Data Collection Procedure

For the data collection, the questionnaires were physically distributed among the university students in different classes and responses were carefully collected. The questionnaires were coded separately to make it easy for data collection from students who were taught by teachers with different qualifications such as Bachelor's/16-year qualified teachers, M.Phil./MS/18-year qualified teachers and PhD qualified teachers. Furthermore, the students who filled the questionnaire were enrolled in Bachelor's/16-year, Master's/16- year and M.Phil./MS./18-year degree programs in various disciplines such as BBA, B.com, BS-Math's, BS Telecom, BS English, BS-CS, BS-electronics, BS- Biochemistry, and BS- SWE, M.com, M.A English, MBA, MS Math's and MCS degree programs at University of Sindh, Jamshoro, Sindh-Pakistan.

DATA ANALYSIS AND HYPOTHESES TESTING

The respondents' data were analyzed in SPSS version 25, and analyses techniques such as frequency analysis, average mean and standard deviation, ANOVA, paired samples T-test, and logistic regression were employed to test the hypotheses.

Table 1 shows descriptive statistics (i.e., frequency and percentage) about the demographic profile of respondents such as their age group, gender, degree program, class year and attendance. We calculated average Mean (M) and Standard Deviation (SD) of students' skills or class performance when they were taught by teachers with different qualifications such as Master's/ 16- year, M.Phil./MS and PhD qualified teachers (see Table 2).

In inferential statistics analyses, we computed paired samples T-test of the students' skills pairs to check the change in Mean (M) and significance level when students are taught by teachers with Master's/

16-year qualifications versus teacher with M.Phil./MS/18-year qualifications (see Table 3). Similarly, Table 4 demonstrates the T-test figures among pairs of students' skills with Mean (M) and significance values who were taught by Master's/16- year qualified teachers versus PhD qualified teachers.

TABLE-1
DEMOGRAPHIC PROFILE OF RESPONDENTS (STUDENTS)

Characteristics	**Frequency**	**Percentage**
Age Group		
18-21	200	50 %
22-25	180	45 %
26-29	20	5 %
Above 30	0	0 %
Gender		
Male	234	58.5 %
Female	166	41.5 %
Degree program		
Bachelor/16-year [a]	230	57.5 %
Master/16-year [b]	128	32. %
M.Phil./MS/18-year [c]	42	10.5 %
Class year		
1st Year	28	7.0 %
2nd Year	156	39.0 %
3rd Year	90	22.5 %
4th Year	126	31.5 %
Attendance		
< 50 %	10	2.5 %
50-75 %	68	17. %
>75 %	322	80.5. %

Note: N = 400 in frequency and *N* = 100% in percentage.

a Students belonged to BBA, B. Com, BS-Math's, BS-Telecom, BS English, BS-CS (Computer Science), BS-Electronics, BS-Biochemistry and BS-SWE (Software Engineering) degree programs.

b Students were from M.com, and M.A English degree program.

c Respondents were enrolled in MBA, MS Math's, and MCS (Master of Computer Science) degree program.

TABLE -2
COMPARATIVE AVERAGE MEAN OF STUDENTS' SKILLS/ CLASS PERFORMANCE TAUGHT BY MASTER'S /16-YEAR, M.PHIL./MS AND PHD QUALIFIED TEACHERS

Students' skills	Master's/16-year qualified teachers		M.Phil./MS qualified teachers		Ph.D. qualified teachers	
	M	*SD*	*M*	*SD*	*M*	*SD*
Subject knowledge	3.482	0.631	3.901	0.522	4.004	0.407
Execution skills	3.209	0.608	3.658	0.632	3.903	0.367
Critical thinking skills	3.414	0.662	3.764	0.642	4.059	0.412
Communication skills	3.448	0.722	3.837	0.633	3.935	0.414
Problem solving skills	3.110	0.804	3.638	0.683	3.814	0.511
Research skills	2.964	0.740	3.680	0.794	3.938	0.482
Technological skills	2.613	0.794	3.550	0.648	3.825	0.495

Note: Students' skills refer to the students' class performance compared in Mean (*M*), and Standard Deviation (*SD*) when taught by different qualified teachers.

TABLE -3
PAIRED SAMPLES T- TEST OF STUDENTS' CLASS PERFORMANCE TAUGHT BY MASTER'S/16-YEAR QUALIFIED TEACHERS V/S M.PHIL./MS QUALIFIED TEACHERS

Students' skills	*M*	*SD*	*SE*	95% CI		*t*	*df*	*p**
				LL	*UL*			
Pair_1: Subject knowledge	0.419	0.869	0.043	0.334	0.505	9.657	399	0.000
Pair_2: Execution skills	0.449	0.863	0.043	0.364	0.534	10.408	399	0.000
Pair_3: Critical thinking skills	0.349	0.924	0.046	0.259	0.440	7.559	399	0.000
Pair_4: Communication skills	0.389	0.966	0.048	0.294	0.484	8.050	399	0.000
Pair_5: Problem solving skills	0.528	1.001	0.050	0.430	0.626	10.551	399	0.000
Pair_6: Research skills	0.716	1.114	0.056	0.606	0.825	12.847	399	0.000
Pair_7: Technological skills	0.938	0.996	0.050	0.840	1.036	18.816	399	0.000

Note: Paired samples *t-test* of students' skills when they were taught by Master's/16-year qualified teachers versus M.Phil./MS qualified teachers. *SE* = Standard Error; CI = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit; df = degree of freedom.
*$p < 0.001$in all the pairs.

TABLE-4
PAIRED SAMPLES T- TEST OF STUDENTS' CLASS PERFORMANCE TAUGHT BY MASTER'S /16-YEAR QUALIFIED TEACHERS V/S PHD QUALIFIED TEACHERS

Students' Skills	*M*	*SD*	*SE*	95% CI		*t*	*df*	*p**
				LL	*UL*			
Pair_1: Subject Knowledge	0.522	0.757	0.038	0.447	0.596	13.781	399	0.000
Pair_2: Execution Skills	0.695	0.706	0.035	0.625	0.764	19.679	399	0.000
Pair_3: Critical thinking Skills	0.645	0.800	0.040	0.566	0.724	16.122	399	0.000
Pair_4: Communication Skills	0.487	0.841	0.042	0.404	0.570	11.583	399	0.000
Pair_5: Problem Solving Skills	0.704	0.966	0.048	0.609	0.799	14.585	399	0.000
Pair_6: Research Skills	0.973	0.939	0.047	0.881	1.066	20.725	399	0.000
Pair_7: Technological Skills	1.213	0.965	0.048	1.118	1.307	25.117	399	0.000

Note: Paired samples t-test of students' skills when they were taught by Master's/16-year qualified teachers versus PhD qualified teachers.
*$p < 0.001$ in all the pairs.

LOGISTIC (LOGIT) REGRESSION MODEL

After coding the data, our dependent variable students' class performance was binary and dummy, so the authors have used logistic regression model to test the hypotheses. The factor variable was

teachers' qualification (PhD, M.Phil./MS and Master's/16-year). In model fitting information $p < .05$ that reflected that model was well fitted and that factor variables significantly predict our response variable. In Pseudo R-Square Nagelkerke was .38 that showed that factor variables have good explanatory power to explain our response variable. While performing logistic regression, in parameter estimate, the factor variable teachers' qualification Master's/16-year represented as 3.00 was taken as base and when it increases up to M.Phil./MS as represented as 2.00 that estimate positively move from 0 to 1.87 and when qualification increase to PhD represented as 1 then estimates move to 3.54. Moreover, the impact is significant ($p < .05$). So, it means that when students are taught by more qualified teacher such as M.Phil./MS and PhD then students' skills improved more than those who were taught by less qualified teacher like Master's/16-year.

RESULTS

The statistical analyses results regarding hypotheses testing are discussed here.

M_H: Teachers' Qualification has Significant Positive Impact on Students' Class Performance

Table 2 shows that average mean of students' skills taught by PhD are higher than students taught by Master's/16-year, and M.Phil./MS qualified teachers. The figures in paired samples t-test in Table 3 and Table 4 indicate significant Mean (M) difference existed; ($t > 1.96$ and $p < .001$ in all the pairs). Hence, this is clear that students' skills increase as the qualification increases which is in line with past studies conducted by Ogundele et al. (2014) who found that higher qualified teachers resulted students' higher academic performance and less qualified teachers resulted students' poor class performance. However, the study conducted by (Gilbert, 2019) showed that teachers who communicated positively in connecting with diverse students who required different communication and learning methods performed better in the classroom. That means apart from qualification, teachers' other factors also matter in students' class performance. While in logit regression as the teachers' qualification increased from Master's/16-year to M.Phil./MS/18-year the estimates positively moved from 0 to 1.87 and estimates further moved positively to 3.54 as PhD qualified teacher taught the students. The value for $p < .05$ which showed that teachers' qualification had significant positive impact on students' class performance and PhD qualified teachers enabled students to develop good skills which support our main hypothesis.

Sub_H1: Teachers' Qualification has Significant Positive Impact on Students' Subject Knowledge

In class, students' subject knowledge improved more when taught by PhD qualified teachers, as Table 2 shows higher average mean ($M = 4.004$) than students who were taught by less qualified teachers. The results of paired samples t-test in Table 3 ($M = .419$, $t = 9.657$, & $p < .001$) indicate the difference in students' subject knowledge taught by M.Phil./MS qualified teacher's V/S Master's/

16years qualified teachers. Similarly, paired difference of the subject knowledge of students taught by PhD qualified teacher's V/S Master's/16-year qualified teachers was (*M*=.522, *t*=13.781, & *p*<.001), see Table 4. The figures reflect that teachers' qualification has significant impact on students' subject knowledge skills, i.e., students acquired more subject knowledge when taught by more qualified teachers such as M.Phil./MS and PhD than students who were taught by less qualified teachers such as Master's/16-year. These findings were in support of research outcomes by (Akiri, 2013; Boyd et al., 2008) which evidenced that students' improvement or better performance in subject knowledge was because of teachers' higher qualification. Additionally, majority of students in write-in response question commented that their subject knowledge broadened when they were taught by more qualified teachers, and they also gave feed-back that those high qualified teachers like M.Phil./MS and PhD helped them to understand their subjects clearly. This is because M.Phil./MS and PhD qualified teachers had studied advance subjects and so they deliver subject knowledge to students more clearly and easily.

Sub_H2: Teachers' Qualification has Significant Positive Impact on Students' Execution Skills

Comparative analysis of average mean of students' execution skills in table 2 show that students taught by Master's/16-year qualified teachers had (*M*=3.209), M.Phil./MS qualified teachers had (*M*=3.658) and PhD qualified teachers (*M*=3.903). This categorically makes clear that more qualified teachers increase students more execution skills, which agreed to the findings of (Aaronson et al., 2003) that teachers' higher qualification matters in teachers' effectiveness and high qualified teachers help students to perform better. Table 3 displays paired difference (*M* = .449, *t*=10.408, & *p*<.001) of students' execution skills taught by M.Phil./MS qualified teachers' V/S Master's/16-year qualified teachers. Similarly, table 4 indicates paired difference (*M* =.695, *t*= 19.679, & *p* <.001) of students' execution skills taught by PhD qualified teachers' V/S Master's/16-year qualified teachers. Since in both pairs significant difference existed; (*t*>2, *p*<.001). Hence, our Sub_H2 is supported that more qualified teachers significantly improve better execution skills of the students in the class. The findings of authors also agreed that teachers are important factors for students' learning and teachers' qualification matters in teachers' effectiveness and students' achievement (Kane et al., 2006; Rockoff, 2004).

Sub_H3: Teachers' Qualification has Significant Positive Impact on Students' Critical Thinking Skills

PhD qualified teachers helped students to improve better critical thinking skills with higher average mean (*M*= 4.059) than those students who were taught by Master's/16-year and M.Phil./MS qualified and had lower average mean (*M*= 3.414) and (*M* =3.764) respectively (see table 2). The increasing mean value clearly reflects that teacher with higher qualification helped students to develop their

critical thinking skills better than lower qualified teachers. Students also commented in open end question that high qualified teachers help them in analyzing concepts and developed their reasoning to understand complex situations in different way. The information in Table 3 indicates paired difference (*M* =.349, *t*= 7.559, and *p*<.001) of students' critical thinking skills taught by M.Phil./MS qualified teacher's V/S Master's/16-year qualified teachers. Likewise, paired samples t test of students critical thinking skills taught by PhD qualified teacher's V/S Master's/16-year qualified teachers displays difference in (*M* =.645, *t*= 16.112, & *p*<.001), see table 4. This supports our Sub_H3 that a significant difference existed in the pairs; teachers' qualification has significant impact on students' critical thinking skills, i.e., students acquire more critical thinking skills when taught by higher qualified teachers such as M.Phil./MS and PhD than lower qualified teachers such as Master's/16-year. The evidence of studies of authors also supported this hypothesis (Lucky & Yusoff, 2013; Ogbonnaya & Osiki, 2007).

Sub_H4: Teachers' Qualification has Significant Positive Impact on Students' Communication Skills.

Data in table 2 depicts that the average mean of students' communication skills taught by Master's/16-year qualified teachers was lower (*M*= 3.448), however it increased to (*M* =3.837) when taught by M.Phil./MS qualified teachers and was highest (*M*=3.935) when taught by PhD qualified teachers. This means that students' communication skills improved more when taught by more qualified teachers such as M.Phil./MS and PhD. This is because more qualified teachers had been involved in studying more advance subjects, research, and reading, writing and presentation activities so they had good communication skills and so during class lecture they help students to develop their communication skills better. In write –in response question majority of students commented that more qualified teachers helped them improve their better communication skills and so they demanded that high qualified teachers should teach them. This is because high qualified teachers result better students' academic performance and learning (Kola & Sunday, 2015). A paired samples t-test in table 3 shows paired difference (*M* =.389, *t*= 8.050, and *p*<.001) of students' communication skills taught by M.Phil./MS qualified teacher's V/S Master's/16-year qualified teachers. In the same way, Table 4 indicates the paired difference (*M* =.487, *t*= 11.583, and *p*<.001) of students' communication skills taught by PhD qualified teacher's V/S Master's/16-year qualified teachers. Since, the difference is significant, so it can be clearly interpreted that teachers' higher qualification positively impacted on students in acquiring better communication skills.

Sub_H5: Teachers' Qualification has Significant Positive Impact on Students' Problem-Solving Skills

In classroom M.Phil./MS, and PhD qualified teachers comparatively helped students improve better problem-solving skills with increasing average mean (*M*=3.638) and (*M*=3.814) respectively,

whereas less qualified teacher (Masters/16years) developed students' less problem-solving skills as showed low mean (M =3.110), refer table 3. This is because high qualified teachers had developed more problem-solving skills due to more involvement in research based problem-solving, advance study of subjects, and hence they helped students to develop more problem-solving skills. It was also common comment by students in open end question that high qualified teachers helped them to understand and solve the course related problems in a better way so more qualified teachers should teach them. These results are similar with findings of (Ibe et al., 2016) that teachers' qualification matters, students taught by more qualified teachers performed better than those who were taught by less qualified teachers. Paired samples t-test results in Table 3 show a paired difference (M = .528, t=10.551, and p<.001) of students' problem-solving skills taught by M.Phil./MS qualified teacher's V/S Master's/ 16years qualified teachers. Similarly, Table 4 indicates paired difference (M =.704, t= 14.585, and p< .001) of students' problem-solving skills taught by PhD qualified teacher's V/S Master's/16-year qualified teachers. As, in both pairs significant mean difference existed, hence, it is evident that M.Phil./MS and PhD qualified teachers' enabled students in acquiring better problem-solving skills than Masters/16 years qualified teachers.

Sub_H6: Teachers' Qualification has Significant Positive Impact on Students' Research Skills

The table 2 demonstrates that students' research skills were greatly improved when taught by PhD qualified teachers (M= 3.938). Similarly, the teachers' qualification M.Phil./MS also impacted positively in developing students' research skills with average mean (M=3.680), whereas students' who were taught by Master's/16-year qualified teachers had lower mean (M=2.964), and so they did not help students in improving this skill. This is mainly because teachers who had higher qualification like M.Phil./MS and PhD had research experience, studied advance research related subjects and they possessed good research skills too, so they enabled students to develop their research skills. Furthermore, in write–in response question majority of students responded that more qualified M.Phil./MS and PhD qualified teachers should teach them because they foster their research spirit and develop their research skills, which is in line with the research findings of (Owolabi & Adedayo, 2012) who found that a significance difference existed in the performance of secondary school Physics students taught by low qualified and high qualified teachers. A paired samples t-test in Table 3 displays a paired difference (M = .716, t= 12.847, and p<.001) of the students' research skills taught by M.Phil./MS qualified teachers' V/S Master's/16-year qualified teachers. Similarly, Table 4 indicates paired difference (M =.973, t= 20.725, and p<.001) of students' research skills taught by PhD qualified teacher's V/S Master's/16-year qualified teachers. These findings supported our Sub_H6, as it showed that teachers' qualification has significant impact on students' research skills, and teachers with higher qualifications M.Phil./MS and PhD helped

students in acquiring better research skills than teachers with lower qualification Master's/16-year.

Sub_H7: Teachers' Qualification has Significant Positive Impact on Students' Technological Skills

The data in table 2 show that in class students' technological skills did not improve when taught by Master's/16- year qualified teachers and had lower average mean (*M* =2.613), whereas students' technological skills were improved better when taught by M.Phil./MS., and PhD qualified teachers and had average mean (*M*= 3.550) and (*M* =3.825) respectively. While acquiring higher qualification teachers develop better technological skills and apply same during teaching to develop such skills of students. The paired samples t-test in table 3 indicates the paired difference (*M* = .938, *t*= 18.816, and *p*<.001) of students' technological skills taught by M.Phil./MS V/S Master's/16-year qualified teachers. Correspondingly, Table 4 shows the paired difference (*M* =1.213, *t*= 25.117, and *p*<.001) of students' technological skills taught by PhD qualified teacher's V/S Master's/16-year qualified teachers. Thus, this suggests that M.Phil./MS and PhD qualified teachers positively impacted and improved students' technological skills than Master's/16-year qualified teachers. These findings agreed with the research results conducted by (Akiri, 2013) who found that the significance difference existed in the performance of students taught by teachers having higher qualification than those who were taught by teachers having lower qualification.

TABLE -5
HYPOTHESES SUPPORTED AND REJECTED STATEMENT

S. No.	Hypotheses Statement	Supported/ Rejected
M_H	Teachers' qualification has significant positive impact on students' class performance	Supported
Sub_H1	Teachers' qualification has significant positive impact on students' subject knowledge	Supported
Sub_H2	Teachers' qualification has significant positive impact on students' execution skills	Supported
Sub_H3	Teachers' qualification has significant positive impact on students' critical thinking skills	Supported
Sub_H4	Teachers' qualification has significant positive impact on students' communication skills	Supported
Sub_H5	Teachers' qualification has significant positive impact on students' problem-solving skills	Supported
Sub_H6	Teachers' qualification has significant positive impact on students' research skills	Supported
Sub_H7	Teachers' qualification has significant positive impact on students' technological skills	Supported

DISCUSSION

According to Burner et al. (2019) there is a wide gap between a set of skills that students acquire in formal education system and skills they should have as required by employers to perform jobs effectively at the workplace. To meet the job market demand, the employers are

expecting that higher education institutes must develop students' skills as per job market needs (Educause Review, 2020).

Quality of education is often linked to the quality of teachers and there has been a debate on the nexus between teachers' quality and qualifications in relation to the students' academic performance. As witnessed by the research of Ibe et al. (2016) that more qualified teachers result students' greater academic achievement and subject knowledge. In the policy document HEC Vision- 2025, it is argued that greatest challenge to the quality of education in Pakistan is due to the lack of qualified teachers in the universities (Taylor, 2017). In this context, the HEC-Pakistan initiated M.Phil. /MS., PhD. and Post doctorate programs to enhance university teachers' qualifications and subsequently improve students' learning and job market-based skills. To know the value of these initiatives, the authors designed the study to answer the central research question, 'Does teacher qualification (Master's/16-year, M.Phil./MS and PhD) matter? If so the extent by which, does it affect the students' class performance?'

Our hypotheses testing results show that university teachers' qualification does matter in the students' class performance, which are consistent to the previous research findings (Ogundele et al., 2014; Akiri, 2013). The extent to which teachers' qualification has effect on students' class performance/ skills also vary with the level of teachers' qualification. As shown in table 2, the average mean of students' skills who were taught by M.Phil./MS./18-year qualified teachers was higher than average mean of students' skills who were taught by Master's/Bachelor's/16-year qualified teachers. Similarly, in table 2, average mean of students' class performance or skills who were taught by PhD. qualified teachers were greater than average class performance or skills of students who were taught by M.Phil./MS./18 year, and Master's/Bachelor's/16-year qualified teachers. Furthermore, the Table 3, and table 4 also indicate that the impact of teachers' higher qualification on students' class performance is significant in all pairs ($t > 1.96$ and $p < 0.05$). Besides, the regression results also supported these findings. Hence, this study witnessed that teachers' higher qualifications (M.Phil./MS, and PhD.) have more significant positive impact on students' class performance than teachers having lower qualifications (Master's/Bachelor's/16-year). In other words, the students' developed effective skills such as subject knowledge, execution, critical thinking, communication, problem-solving, research, and technological skills when lectured by higher qualified teachers than lower qualified teachers. These findings aligned to the results witnessed by the previous studies which were focused on specific subjects at school level (Abe, 2014; Aliyu et al., 2013; Boyd et al., 2008). Thus, our all-alternate hypotheses are supported (see table 5).

CONCLUSIONS

Based on findings of this research, the authors concluded that university teachers' qualifications matter in students' class performance or skills. More qualified teachers such as M.Phil. /MS and PhD enabled students to acquire better skills in the class than

relatively low qualified teachers (Master's/16-year). The similar findings were witnessed by studies of authors (Ibe et al., 2016; Kola & Sunday, 2015; Yusuf & Dada, 2016). However, the research findings of Gilbert (2019) argued that different types of students need teachers with different communication and learning styles for better performance in the classroom. Hence, many universities and institutes are adopting Competency- Based Education (CBE) which focuses on individual students needs and develops wide variety of skills and considers learning outcomes as competencies instead of just measuring micro level output of institutes (Fain, 2019). It is emphasized that the higher education institutes and universities should redesign degree programs and courses according to job market needs and that enable students to acquire skills, knowledge and competencies required now and in future by employers (Educause Review, 2020).

RECOMMENDATIONS

Since after industrial revolution and subsequent influx of technology, machines, robots, computers have changed workplace dynamics and that has widened skills gap in all industries (World Economic Forum, 2018). This study recommended that to fill the skills gap of current and future market needs, the universities and institutes should revise their curriculum and programs and should provide competency-based education. As suggested by authors, the teachers should use action research in courses which require students to undertake "problem – oriented project work" (Frandsen & Andersen, 2019). The initial appointment of teachers should be made on M.Phil./ MS and more and more PhD qualified teachers should teach at university level. This research also suggested that industry-academia bridge should be strengthened, and corporations and organizations should be engaged in universities in determining and advising market-oriented skills. Students' class performance, i.e., various skills like subject knowledge, execution, critical thinking, communication, research, and technological skills should be assessed in relation to course learning objectives.

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APPENDIX

A SURVEY QUESTIONNAIRE ON ASSESSING UNIVERSITY STUDENTS' CLASS PERFORMANCE (QAUSCP)

"Subject Knowledge/Acquisition Skills"

- "The course provided me with a broad overview of my field of knowledge"
- "The course has enabled me to prepare for exams only working through course material"
- "The course has provided me with scientific information that allows me to gain a better and deeper understanding of the subject field"
- "The course has helped me to develop my acquisition skills to level of set course learning objectives"

"Execution Skills"

- "The course has enabled me to apply facts, theories or methods to practical problems or new situations"
- "The course has enabled me to connect ideas from my prior experiences and knowledge"
- "The course has enabled me to work with other students on course projects or assignments"
- "The course has enabled me to relate the classroom content to the lab content"
- "The course has helped me to develop my execution skills to the level of set course learning objectives"

"Critical Thinking Skills"

- "The course has helped me to critically analyze an idea or experience in line of reasoning in depth by examining its parts"
- "The course has enabled me to interpret complex ideas/concepts in simple form"
- "The course has made me to learn that changed the way I understand an issue or concept"
- "The course has helped me to develop my overall critical thinking skills to the level of set course learning objectives"

"Communication Skills"

- "The course has helped me to improve my skills in written communication"
- "The course has helped me to improve my skills in oral communication"
- "The course has helped me to give a course presentation"
- "The course has allowed and encouraged me for class participation"
- "The course has facilitated me for student-student and student-teacher interaction"
- "The course has helped me to develop my ability to work as a team member"
- "The course has helped me to develop my communication skills to the level of set course learning objectives."

"Problem Solving Skills"

- "The course has enabled me to feel confident about tackling unfamiliar problems"
- "The course contents and teaching were in the way that enabled me to clarify problems during classes"
- "The course has helped me to develop my overall problem-solving skills to the level of set course learning objectives."

"Research Skills"

- "The course has enabled me to develop my confidence to investigate new ideas"
- "The course has helped me to foster research spirit in me"
- "The course has enabled me to attend research related seminars/workshops/activities"
- "The course has helped me to develop my overall research skills to the level of set course learning objectives."

"Technological Skills"

- "The course has enabled me to incorporate and employ ICTs (Information and communication Technologies) in my classroom learning"
- "The course has enabled me to use technology in networking/collaborating with students/teachers"
- "The course has made me to use ICT in research"
- "The course has helped me to develop my technological skills to the level of set course learning objectives."