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# Perceptions of Teachers Regarding English Medium Instructions at Secondary Education in Karachi

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**Abstract**

This study is designed to determine perceptions of students and teachers regarding English as medium of instructions. The research consists of a questionnaire survey. The sample for the survey involved 100 teachers from private secondary schools of Karachi province, Pakistan. Stratified Random Cluster sampling method was implemented to choose schools for the survey. Teachers of secondary school were chosen randomly for sampling. This survey questionnaire contains 5-point Likert scales. To analyze quantitative data, descriptive statistics, one-way ANOVA and bivariate correlations was conducted.

**Keywords:** English Medium Instruction (EMI); Perceptions of Secondary School Teachers; Attitudes toward English

## Introduction

In Pakistan's Karachi Province, almost all public and private schools teach science courses in English. Teachers and students find it challenging to comprehend topics in English because it is a foreign language in Karachi. The English language is thought to be crucial for advancement in both higher education and science and technology. Thus, the purpose of this study is to ascertain how instructors and students see science training delivered in English. Due to sociopolitical and economic forces influencing the community, English seemed to have proliferated and grown more noticeable after World War Two. English not only spread throughout colonized regions of the world but also started to take over in non-colonized areas. Eventually, it became the universal language and a common means of communication for individuals whose first languages are different (Holmes, 1997). The English language's dominance in worldwide business, diplomacy, commerce, education, science and technology, and popular media throughout the twentieth and twenty-first centuries is one of its primary features (Fishman, 1992). These days, English is mostly used for communication, which has increased its visibility and made it an

international language of knowledge and information. These are recognized as instruments of political and economic power in the modern day. English's increasing integration into educational systems worldwide is not surprising. Countries are forced to reevaluate their language policies in the educational system due to the widespread usage of English. The teaching of English as a second or foreign language and English as a medium of instruction are two notable aspects of the English language. The latter was more common in colonies administered by the United States and Britain where English was semi-official or official in the educational system. English as a medium of instruction persists because of political and social restructuring following political independence, despite the tendency in some countries to return to their mother tongue in the educational system (Evans, 2002; Flowerdew, 2012; Rahman, 1997; Ramanthan & Atkinson, 1999; Tickoo, 1996). As a result, the English language has taken center stage in national education across the globe. In 1947, shortly after gaining independence, a conference on education was held in Pakistan. The Pakistani government decided that Urdu would be the language of instruction in public schools. It was believed that our children would gain from an education system that used Urdu because they would be able to learn in their mother tongue without the need for translation, which would lead to a deeper comprehension of concepts. English language was given official status in the country. Subjects at intermediate and Bachelor levels were taught both in Urdu and English languages colleges but for science subjects English-medium was implemented. As a result, many students who came from Urdu- medium background, struggled to cope with instructions in English-medium. Official language of the country was English meant that students who studied in English- medium institutions had better opportunities for employment and better chances for admission to higher education. As a result, English-medium schools gained popularity across the nation. Middle-class families were naturally under pressure to send their kids to English-medium schools as a result. For their children to have a brighter and better future, they had to pay greater fees. However, the Government of Pakistan said in 2009 that English-medium instruction would be introduced in all public schools, with a focus on science and math. It was acknowledged that little planning had been done before making this choice. A 2013 study by the British Council found that school teachers lacked the necessary tools to instruct in English. Like any other discipline, science requires a language to impart knowledge and abilities. Only students' comprehension of science courses taught in English will be the focus of this investigation. This is crucial since language is a tool for people to exchange concepts and ideas with one another and plays a significant part in thinking and communication (Aziz, 2003). However, science and math have recently been taught in English. Their learning of science and math may be slowed down or delayed, and they may become confused about the ideas they are studying. A sudden shift in the way science and math are taught could cause culture shock and have a negative impact on students' learning. Students' perceptions of their past experiences and knowledge generally influence how well they learn science and math. Students' past experiences and knowledge can be very persistent and resistant to change. In 1982, Gilbert et al. Therefore, in order to gather data and produce insightful findings, it is essential that this study investigate students' perspectives on learning and teaching mathematics in the English language.

Therefore, in order to completely appreciate the current work, it is important to first establish the knowledge, attitudes, readiness, and views of these teachers regarding the adoption of English as a medium of instruction for science and mathematics. According to Pandian (2002), all of the fundamental teaching tasks are impacted by the knowledge and abilities of teachers. Furthermore, a number of studies have emphasized how teachers affect students' conduct (Chakravarthy, 1997; Gambrell, 1996; Pandian, 1999).

**Single National Curriculum (SNC)**

**Vision**: One system of Education for all, in terms of curriculum, medium of instruction and a common platform of assessment so that all children have a fair and equal opportunity to receive high quality education. Single National Curriculum is a step in that direction.

**Subject-Wise Salient Features**

**Mathematics**

- Gradual progression in teaching approach from grade 1 – 5 - concrete – pictorial - abstract
- Focus on developing solid conceptual foundation based on logical reasoning
- Responds to SDG 4 goals such as communication, collaboration and independent learning.
- Emphasis on linking Math with real life situations through examples and number stories
- Several suggested activities for each content area to promote learning
- Integration of ICT through web links and students-based tasks
- Alignment with Trends in International Mathematics and Science Study (TIMSS) for the best teaching and assessment practices.

**General Science**

- Realignment in view of latest global trends and practices in Science education
- Addition of Technology based content as separate chapters
- Integration of themes such as conservation, bio-ethics, scientific responsibilities & care for the environment and all living beings
- Promotion of inquiry-based learning
- Integration of ICT into the curriculum through web links and project work
- Integration of STEAM as a cross cutting strand

This study finds out teachers' perception about English Medium Instructions and also investigated whether or not they are competent in teaching science and mathematics in English. Therefore, it provides guidance to the government and other stakeholders on how the teachers view English Medium Instructions. This helps them to improve language skills; this will also investigate whether EMI hinders the learning process due to the concepts of science and mathematics being more difficult to comprehend in the English medium. It will also point out the kind of support required by teachers and students for teaching and learning of science and mathematics in English. How can we expect teachers who are not fluent in the language to handle the dual demands of teaching language and content? They will struggle to effectively cover their subject matter. As a result, the lecturers can be using a combination of Urdu and English when instructing science and math. Research has shown that first-language education does not impede second-language acquisition (Bacherman, 2007; Tong et al., 2008). However, learners' language development is hampered and they are deterred from speaking the second language by limited usage of the mother tongue and constant reliance on translation (Hong, 2008).

**Research Questions**

Therefore, to understand the task at hand, it is vital for us to find out the attitudes, perceptions, and readiness of the teachers towards teaching of science and mathematics in English. Therefore, the purpose of this study was to investigate the following research questions:

**i.** What are the perceptions of teachers regarding English medium instruction at secondary education?

**ii.** Do teachers favor English-medium instruction at secondary education?

**iii.** According to the perceptions of teachers, does English-medium instruction influence the instructional process at secondary education?

**iv.** Does English-medium instruction influence students' learning of the subject matter/content?

**v.** Does English-medium instruction influence students' linguistic skills?

**vi.** Does English-medium instruction influence teachers' teaching performance?

**Research Methodology**

This study sought to obtain completion of teachers teaching mathematics and science in one of the schools of Karachi Pakistan in respect to English as medium of instruction for teaching of science and mathematics.

**Instruments**

A set of questionnaires were administered to the subjects to determine teachers' English language command as well as problems that they faced using English in the teaching of mathematics and science. The questionnaire also asked selected personal background information of the subjects and statements related to teacher views and teaching practices in regard to teaching mathematics and science in English. The choice of answers was given on a Likert scale ranging from 'always' to 'never'.

**Subjects**

The data were collected from teachers via self-designed instruments. The instruments consisted of a survey questionnaire and interview protocols. The former contained Likert scales as well as categorical and numeric items, which gave quantifiable data. Besides these, there were open-ended questions in the survey questionnaire, which yielded qualitative data. The latter gave qualitative data via semi-structured questions. The pilot study also comprised qualitative and quantitative procedures that involved validity and reliability check. Interims of data analysis, descriptive and correlational statistics were used in connection with the scales, all of which are quantitative procedures. For the analysis of interviews and open-ended questions, a qualitative procedure, content analysis. A total of schools were using EMI in teaching of Mathematics and Science. The data source for the survey were teachers. The teachers in the selected in the secondary schools were all content area teachers who were teaching or have taught Mathematics and Science subjects in medium of English or partially in English. Therefore, the total population in the selected schools has been reflected in the sample. Out of those schools 85 teachers 5 from each were selected and the majority of the teachers had at least five years teaching experience.

**Data analysis**

Both qualitative and quantitative data analyses were used in the study. The subjects' responses were analyzed using descriptive statistics. Percentages and frequencies of their responses to the items related to their reaction to the medium of instruction, the problems encountered in terms of the use of English in the classroom, their awareness of scientific and mathematical discourse and the support available to them were calculated. Interview data were qualitatively analyzed with initial descriptive codes being assigned to teachers' responses. Related codes were then grouped according to categories and common themes (Bogdan & Biklen, 2003). Illustrative quotations representing each theme are used to support findings of the survey. The data analysis showed that teachers think that there are benefits of EMI.

**General Information of the Study Participants**

| | Age (in years) | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 18-25 | 2 | 1.9 | 1.9 | 1.9 |
| | 26-33 | 36 | 35.0 | 35.0 | 36.9 |
| | 34-41 | 45 | 43.7 | 43.7 | 80.6 |
| | 42-49 | 20 | 19.4 | 19.4 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |
| | Gender | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Male | 32 | 31.1 | 31.1 | 31.1 |
| | Female | 71 | 68.9 | 68.9 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |
| | Your Qualification | Frequency | Percent | Valid Percent | Cumulative Percent |

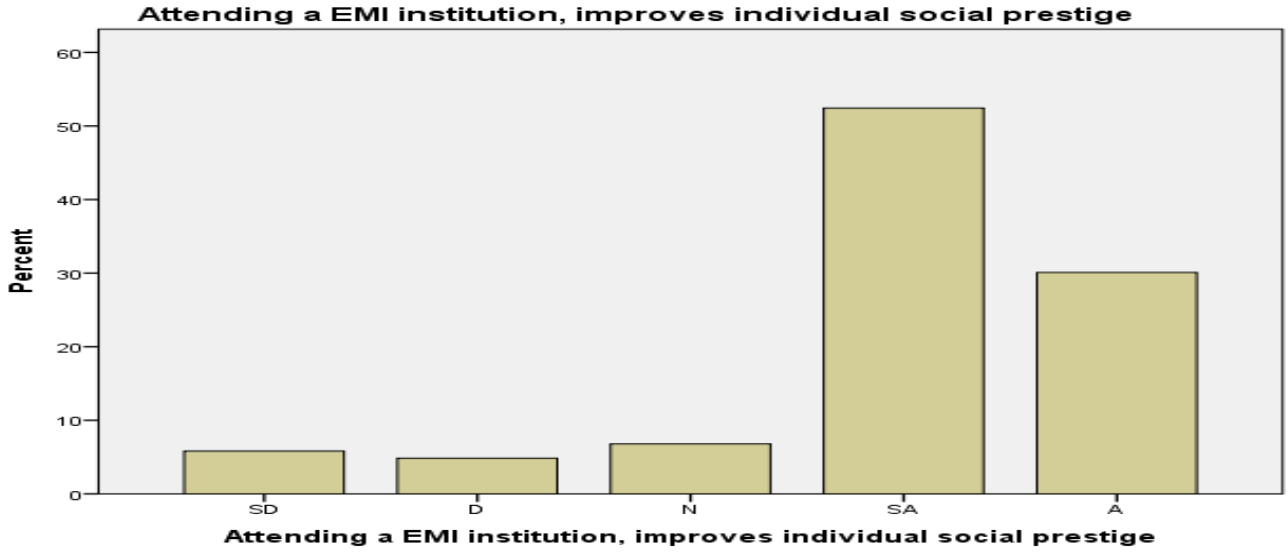
| | | | | | |
|---|---|---|---|---|---|
| Valid | Matric | 4 | 3.9 | 3.9 | 3.9 |
| | Inter | 8 | 7.8 | 7.8 | 11.7 |
| | Graduation | 45 | 43.7 | 43.7 | 55.3 |
| | Post-Graduation | 46 | 44.7 | 44.7 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| | Experience | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 3 years to 5 years | 24 | 23.3 | 23.3 | 23.3 |
| | 10 years to 15 years | 21 | 20.4 | 20.4 | 43.7 |
| | 16 years to 20 years | 27 | 26.2 | 26.2 | 69.9 |
| | 21 years to 30 years | 19 | 18.4 | 18.4 | 88.3 |
| | others | 12 | 11.7 | 11.7 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| | Medium | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | English | 34 | 33.0 | 33.0 | 33.0 |
| | Urdu | 69 | 67.0 | 67.0 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

**Item Analysis**

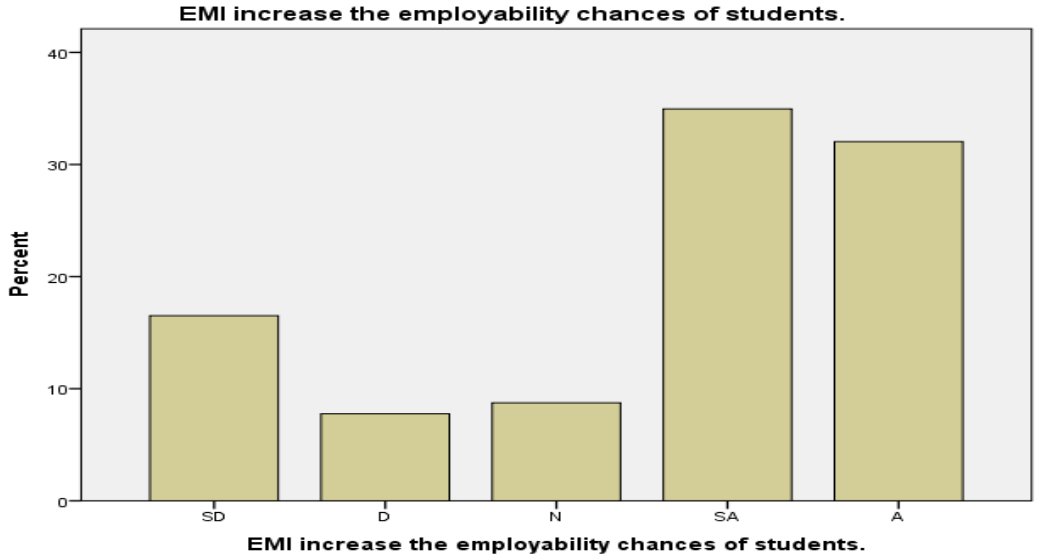
| Attending a EMI institution, improves individual social prestige | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 6 | 5.8 | 5.8 | 5.8 |
| | D | 5 | 4.9 | 4.9 | 10.7 |
| | N | 7 | 6.8 | 6.8 | 17.5 |
| | SA | 54 | 52.4 | 52.4 | 69.9 |
| | A | 31 | 30.1 | 30.1 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |



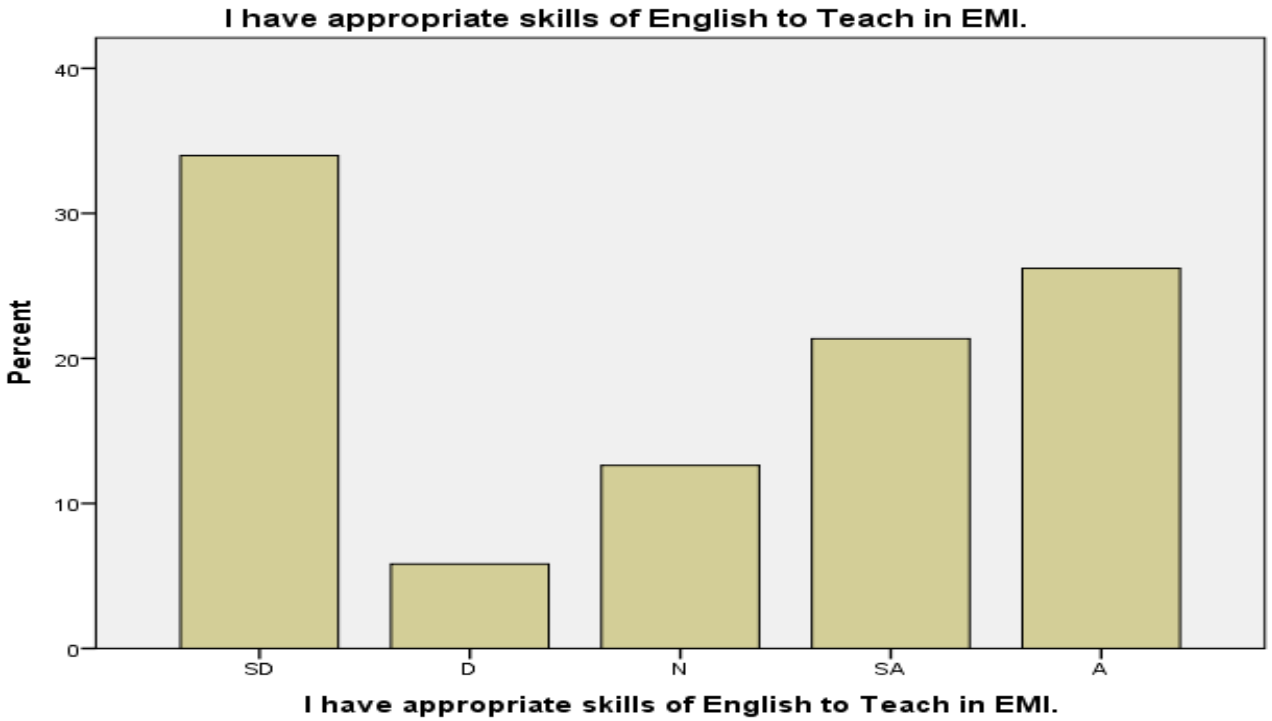
| EMI contributes to students' cognitive development | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 29 | 28.2 | 28.2 | 28.2 |
| | D | 47 | 45.6 | 45.6 | 73.8 |
| | N | 13 | 12.6 | 12.6 | 86.4 |
| | SA | 6 | 5.8 | 5.8 | 92.2 |
| | A | 8 | 7.8 | 7.8 | 100.0 |
| Total | | 103 | 100.0 | 100.0 | |

| I find English-medium instruction (EMI) useful. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 37 | 35.9 | 35.9 | 35.9 |
| | D | 25 | 24.3 | 24.3 | 60.2 |
| | N | 8 | 7.8 | 7.8 | 68.0 |
| | SA | 27 | 26.2 | 26.2 | 94.2 |
| | A | 6 | 5.8 | 5.8 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

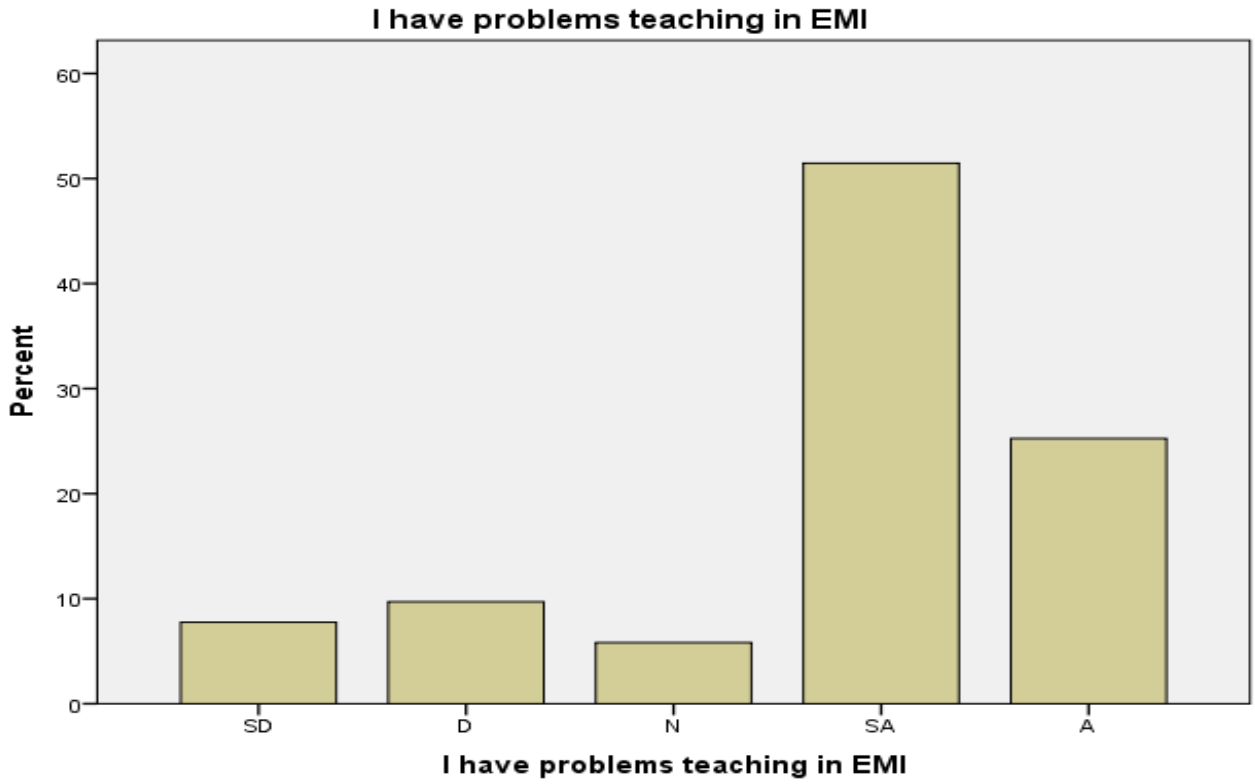
| EMI increase the employability chances of students. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 17 | 16.5 | 16.5 | 16.5 |
| | D | 8 | 7.8 | 7.8 | 24.3 |
| | N | 9 | 8.7 | 8.7 | 33.0 |
| | SA | 36 | 35.0 | 35.0 | 68.0 |
| | A | 33 | 32.0 | 32.0 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |



| I have appropriate skills of English to Teach in EMI. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 35 | 34.0 | 34.0 | 34.0 |
| | D | 6 | 5.8 | 5.8 | 39.8 |
| | N | 13 | 12.6 | 12.6 | 52.4 |
| | SA | 22 | 21.4 | 21.4 | 73.8 |
| | A | 27 | 26.2 | 26.2 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

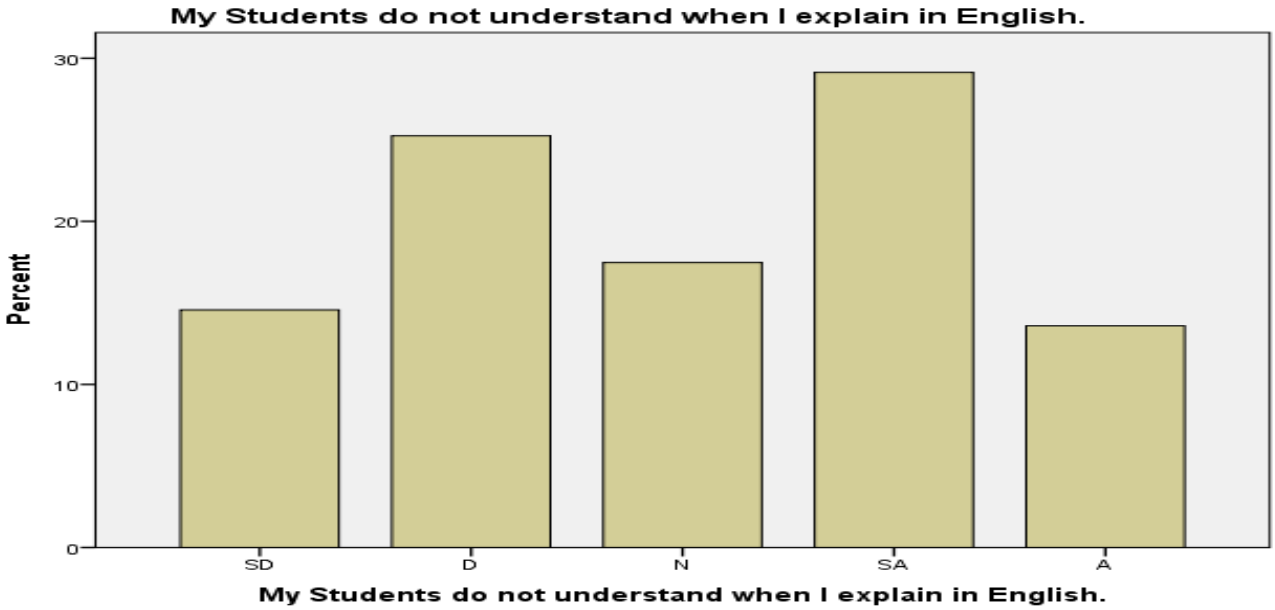



| I have problems teaching in EMI | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 8 | 7.8 | 7.8 | 7.8 |
| | D | 10 | 9.7 | 9.7 | 17.5 |
| | N | 6 | 5.8 | 5.8 | 23.3 |
| | SA | 53 | 51.5 | 51.5 | 74.8 |
| | A | 26 | 25.2 | 25.2 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |



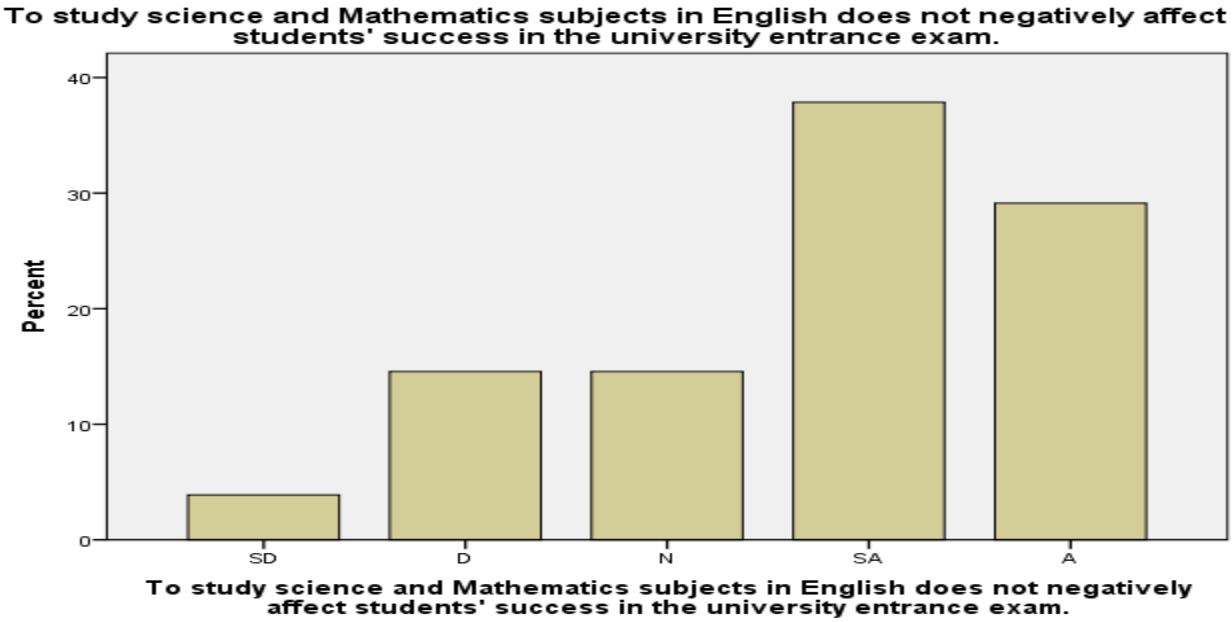

| I explain in Urdu when I have problem explaining concepts in English. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Always | 5 | 4.9 | 4.9 | 4.9 |
| | Often | 10 | 9.7 | 9.7 | 14.6 |
| | Sometimes | 4 | 3.9 | 3.9 | 18.4 |
| | Rarely | 28 | 27.2 | 27.2 | 45.6 |
| | Never | 56 | 54.4 | 54.4 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| My students do not understand when I explain in English | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 15 | 14.6 | 14.6 | 14.6 |
| | D | 26 | 25.2 | 25.2 | 39.8 |
| | N | 18 | 17.5 | 17.5 | 57.3 |
| | SA | 30 | 29.1 | 29.1 | 86.4 |
| | A | 14 | 13.6 | 13.6 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |




To study science and Mathematics subjects in English does not negatively affect students' success in the university entrance exam.

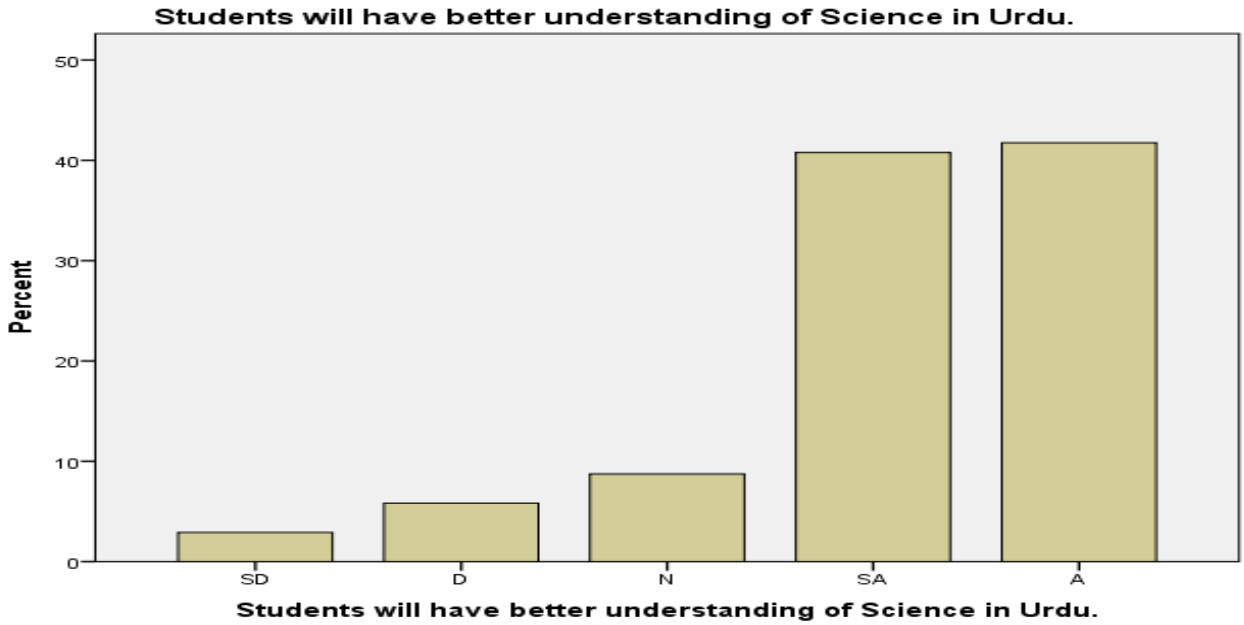
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 4 | 3.9 | 3.9 | 3.9 |
| | D | 15 | 14.6 | 14.6 | 18.4 |
| | N | 15 | 14.6 | 14.6 | 33.0 |
| | SA | 39 | 37.9 | 37.9 | 70.9 |
| | A | 30 | 29.1 | 29.1 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |



| Students have problem understanding concepts of Mathematics in EMI. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 17 | 16.5 | 16.5 | 16.5 |
| | D | 18 | 17.5 | 17.5 | 34.0 |
| | N | 23 | 22.3 | 22.3 | 56.3 |
| | SA | 33 | 32.0 | 32.0 | 88.3 |
| | A | 12 | 11.7 | 11.7 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| Students have problem understanding concepts of science in EMI | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 7 | 6.8 | 6.8 | 6.8 |
| | D | 16 | 15.5 | 15.5 | 22.3 |
| | N | 19 | 18.4 | 18.4 | 40.8 |
| | SA | 32 | 31.1 | 31.1 | 71.8 |
| | A | 29 | 28.2 | 28.2 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| Students will have better understanding of Science in Urdu. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 3 | 2.9 | 2.9 | 2.9 |
| | D | 6 | 5.8 | 5.8 | 8.7 |
| | N | 9 | 8.7 | 8.7 | 17.5 |
| | SA | 42 | 40.8 | 40.8 | 58.3 |
| | A | 43 | 41.7 | 41.7 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |



| EMI will have an adverse effect on student achievement in Science and Math subjects | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 24 | 23.3 | 23.3 | 23.3 |
| | D | 26 | 25.2 | 25.2 | 48.5 |
| | N | 13 | 12.6 | 12.6 | 61.2 |
| | SA | 21 | 20.4 | 20.4 | 81.6 |
| | A | 19 | 18.4 | 18.4 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| Students will have better understanding of Mathematics in Urdu. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 11 | 10.7 | 10.7 | 10.7 |
| | D | 17 | 16.5 | 16.5 | 27.2 |
| | N | 16 | 15.5 | 15.5 | 42.7 |
| | SA | 35 | 34.0 | 34.0 | 76.7 |
| | A | 24 | 23.3 | 23.3 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

| If Science and Math are studied in English, the students can learn the language of science and technology. | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 10 | 9.7 | 9.7 | 9.7 |
| | D | 16 | 15.5 | 15.5 | 25.2 |
| | N | 13 | 12.6 | 12.6 | 37.9 |
| | SA | 42 | 40.8 | 40.8 | 78.6 |
| | A | 22 | 21.4 | 21.4 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

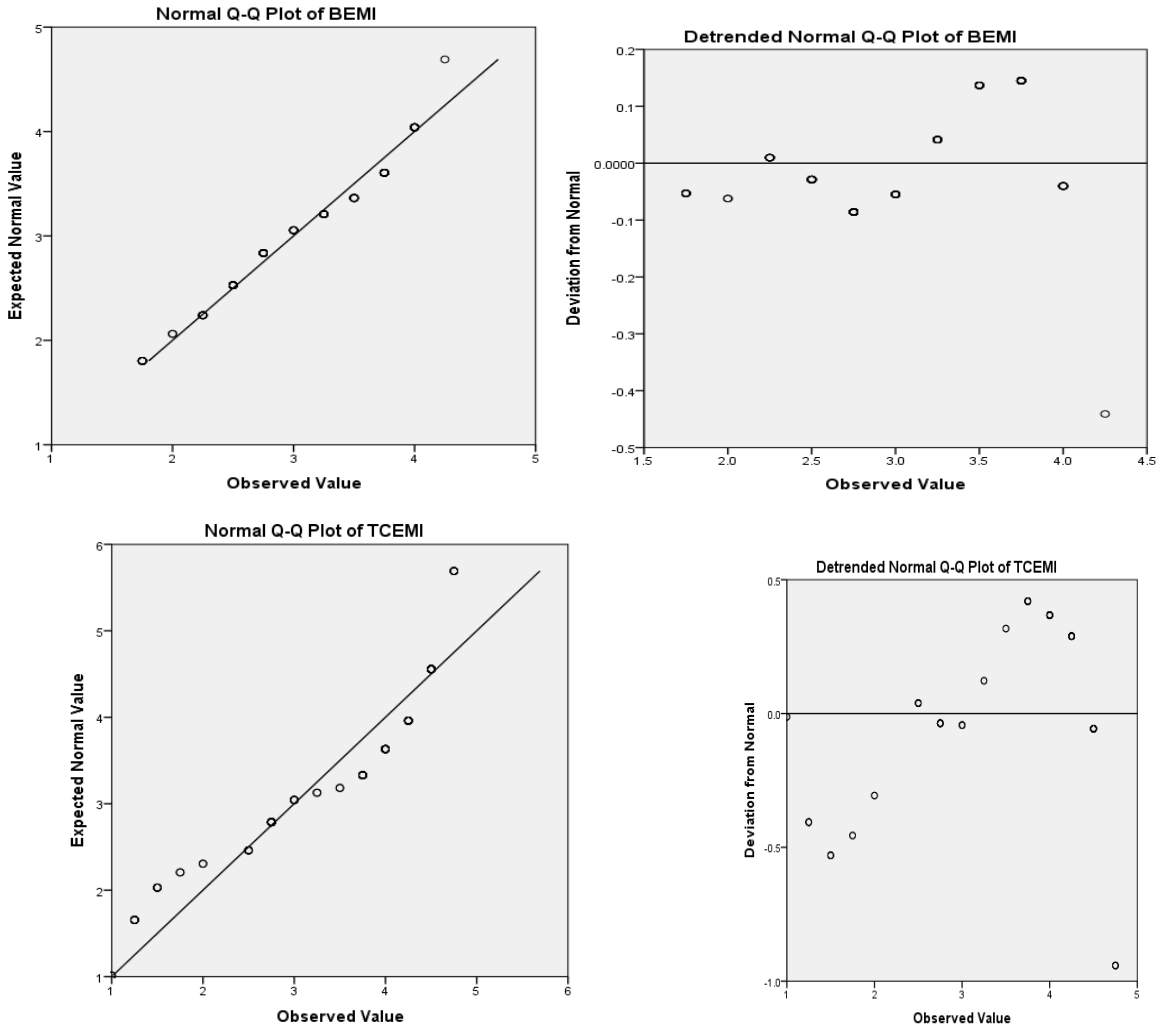
| EMI has a negative effect on the efficiency of Science and Math instructions | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | SD | 11 | 10.7 | 10.7 | 10.7 |
| | D | 14 | 13.6 | 13.6 | 24.3 |
| | N | 11 | 10.7 | 10.7 | 35.0 |
| | SA | 32 | 31.1 | 31.1 | 66.0 |
| | A | 35 | 34.0 | 34.0 | 100.0 |
| | Total | 103 | 100.0 | 100.0 | |

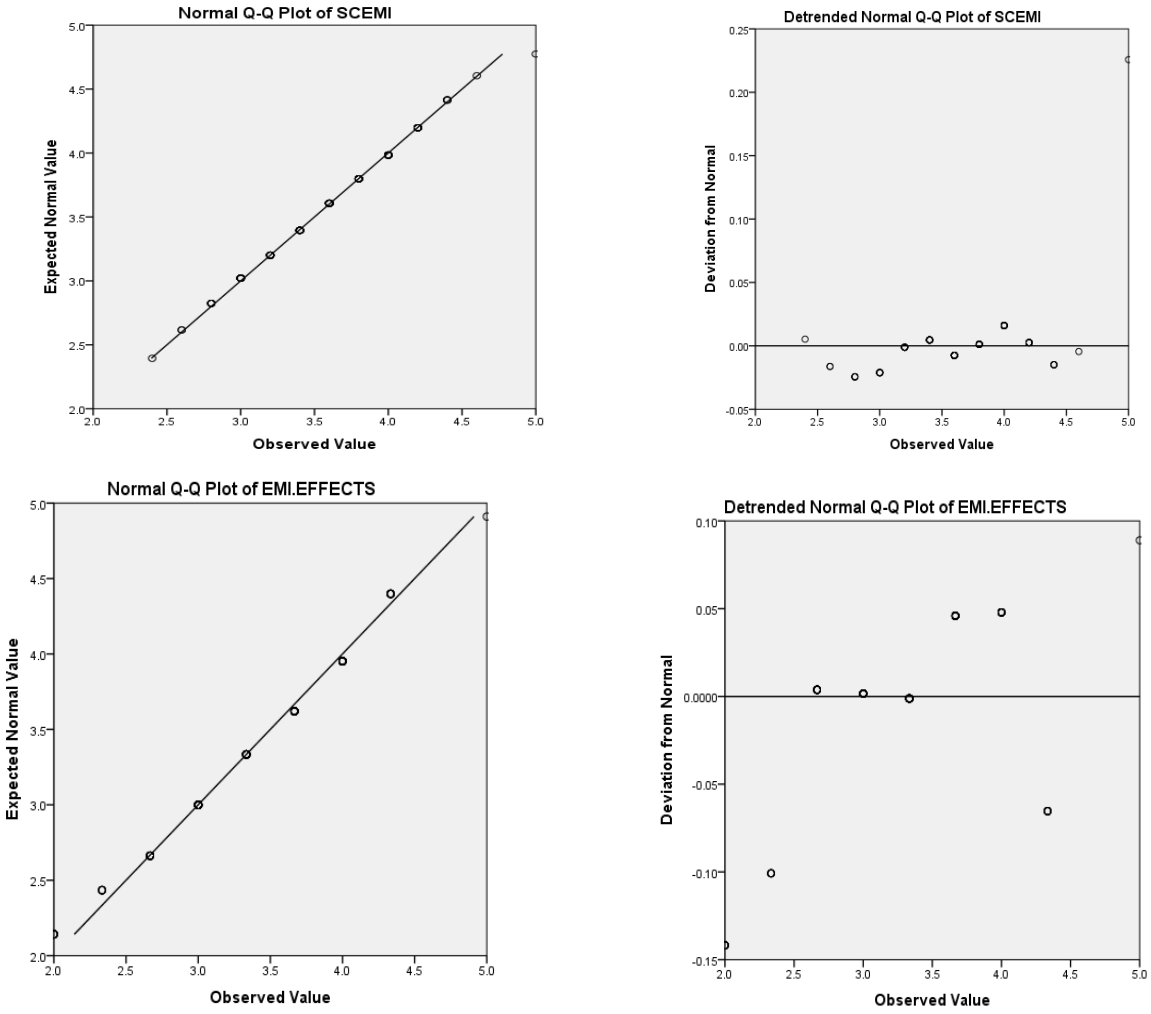
**Normality Distribution of Data**

The normality assumption was tested by displaying the model residuals quantiles against the quantiles of a Chi-square distribution, often known as a Q-Q scatterplot. The residual quantiles must not differ significantly from the theoretical quantiles in order to meet the normality assumption. The presence of large variances may suggest that the parameter estimations are incorrect.

| Estimated Distribution Parameters | | BEMI | TCEMI | SCEMI | EMI.EFFECTS |
|---|---|---|---|---|---|
| Normal Distribution | Location | 3.0388 | 3.4879 | 3.5845 | 3.3269 |
| | Scale | .65843 | 1.07920 | .47419 | .63139 |

The cases are unweighted.






According to Field (2005), the normality of residuals should be checked using both a normal Q-Q plot and a Histogram. In the Q-Q figure, the direct diagonal line reflects the normal distribution, according to Field (2005). A pristine normal distributed data set is indicated by all points on the straight line. The points that deviate from the straight line indicate a deviation from the normality. The Q-Q scatterplot, Histogram and all the points on straight diagonal line indicates the normality of this study as shown in Figures. This result suggests that scales of English medium instruction is unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

**One Sample T-Test**

Benefits for English Medium Instruction (EMI)

| Item | Statement | Mean | Std Dev |
|---|---|---|---|
| 1 | Attending an EMI institution, improves individual social prestige | 3.9612 | 1.04715 |
| 2 | EMI contributes to students' cognitive development | 2.1942 | 1.14668 |
| 3 | I find English-medium instruction (EMI) useful. | 2.4175 | 1.36140 |
| 4 | EMI increase the employability chances of students. | 3.5825 | 1.43161 |
| | Total Mean Score | 3.0388 | .65843 |

t= 8.306 df =102 Sig. = .001

**Statistical Interpretations:** The outcome of the two-tailed one sample t-test was significant based on an α value of 0.05, t= 8.306, p < .001, representing the null hypothesis can be rejected. This finding suggests benefits for English medium instruction (EMI) was produced by a distribution with an average score that is greater than the midpoint average mean 2.5. These results indicate the level of agreement/disagreement in this regard majority of the study participants were agreed that they got benefits for English medium instruction.

**Teacher's Competency in EMI**

| Item | Statement | Mean | Std Dev |
|---|---|---|---|
| 5 | I have appropriate skills of English to Teach in EMI. | 3.0000 | 1.64496 |
| 6 | I have problems teaching in EMI | 3.7670 | 1.16488 |
| 7 | I explain in Urdu when I have problem explaining concepts in English. | 4.1650 | 1.18070 |
| 8 | My students do not understand when I explain in English. | 3.0194 | 1.29842 |
| | Total Mean Score | 3.4879 | 1.07920 |

t= 9.290 df =102 Sig. = .001

Mostly teachers (70%) felt that teachers do not have appropriate skills to teach Mathematics and Science subjects in EMI. Most of them (74%) thought that teachers had problem teaching Mathematics and Science subjects in EMI. 75% teachers use Urdu to explain the content. 76% think that students don't understand in English.

Students' competency in Learning Science and Mathematics in EMI

| Item | Statement | Mean | Std Dev |
|---|---|---|---|
| 9 | To study science and Mathematics subjects in English does not negatively affect students' success in the university entrance exam. | 3.7379 | 1.14585 |
| 10 | Students have problem understanding concepts of Mathematics in EMI. | 3.0485 | 1.27862 |
| 11 | Students have problem understanding concepts of science in EMI. | 3.5825 | 1.24084 |
| 12 | Students will have better understanding of Science in Urdu. | 3.5825 | .99685 |
| 13 | Students will have better understanding of Mathematics in Urdu. | 3.4272 | 1.30310 |
| | Total Mean Score | 3.5845 | .47419 |

t= 23.210 df =102 Sig. = .001

Mostly teachers (67% and 69%) felt that students have difficulty in understanding Mathematics and Science instructions English. While (69%) viewed Urdu medium instruction can help students to understand Mathematics better; while 68% considered that teaching Science in Urdu will provide better understanding of concepts. On the other hand 68% feel that EMI will not affect University entrance examination.

EMI Effect on Students

| Item | Statement | Mean | Std Dev |
|---|---|---|---|
| 14 | If Science and Math are studied in English, the students can learn the language of science and technology. | 3.4854 | 1.25919 |
| 15 | EMI has a negative effect on the efficiency of Science and Math instructions | 3.6408 | 1.35657 |

| | | | |
|---|---|---|---|
| 16 | EMI will have an adverse effect on student achievement in Science and Math subjects | 2.8544 | 1.45796 |
| | Total Mean Score | 3.3269 | .63139 |

t= 13.291 df =102 Sig. = .001

EMI Effect on Students Many teachers 76% felt that EMI facilitate to learn the language of science and technology. 67% thought that EMI affect negatively the instruction of teachers. While 70% viewed that EMI have adverse effect on students' achievements (Table 4). Hence teachers understand the importance of EMI, but they lack the competency teaching in English

**Multiple Regression Model**

Variables Entered/Removed[a]

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | BEMI, SCEMI, TCEMI[b] | . | Enter |

a. Dependent Variable: EMI.EFFECTS
b. All requested variables entered.

Model Summary[b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .306[a] | .094 | .066 | .61006 |

a. Predictors: (Constant), BEMI, SCEMI, TCEMI
b. Dependent Variable: EMI.EFFECTS

ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 3.817 | 3 | 1.272 | 3.419 | .020[b] |
| | Residual | 36.845 | 99 | .372 | | |
| | Total | 40.662 | 102 | | | |

a. Dependent Variable: EMI.EFFECTS
b. Predictors: (Constant), BEMI, SCEMI, TCEMI

Coefficients[a]

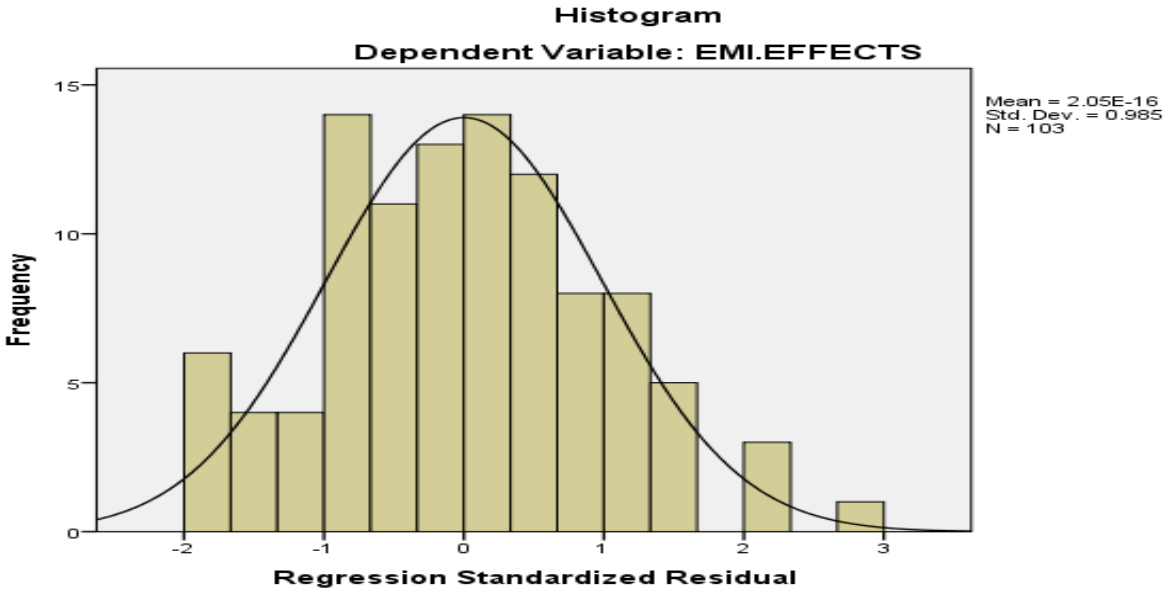
| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 2.958 | .814 | | 3.635 | .000 |
| | TCEMI | -.133 | .075 | -.227 | -1.772 | .079 |
| | SCEMI | .085 | .169 | .064 | .502 | .617 |
| | BEMI | .174 | .093 | .182 | 1.865 | .065 |

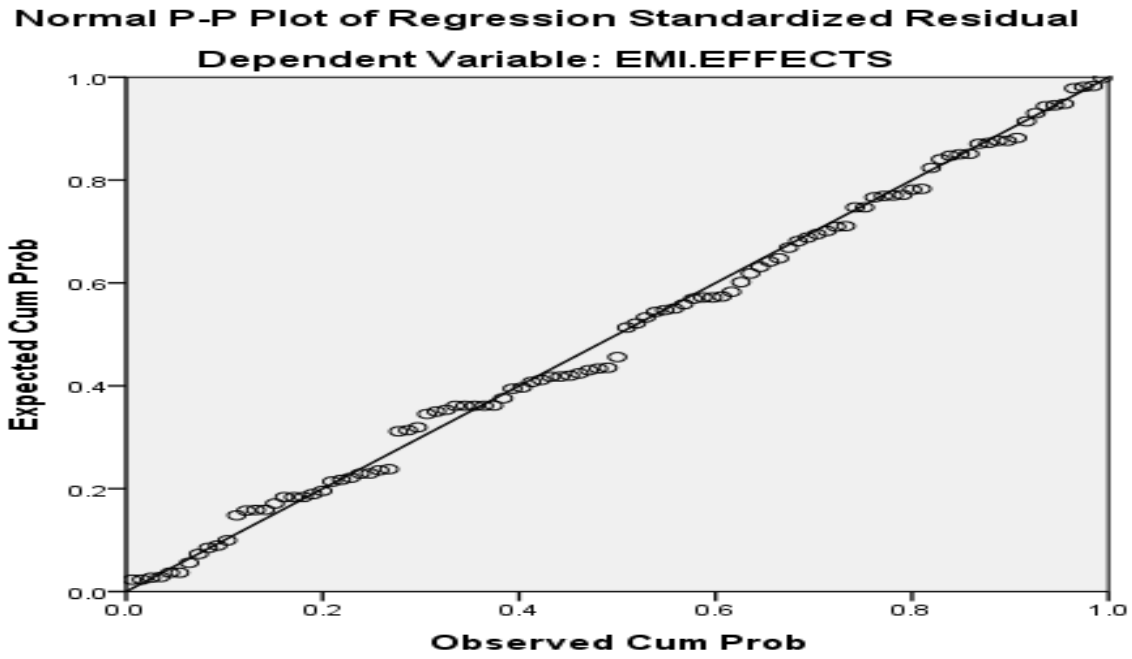
a. Dependent Variable: EMI.EFFECTS

Residuals Statistics[a]

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 3.0060 | 3.7123 | 3.3269 | .19346 | 103 |
| Residual | -1.21639 | 1.80719 | .00000 | .60102 | 103 |
| Std. Predicted Value | -1.659 | 1.993 | .000 | 1.000 | 103 |
| Std. Residual | -1.994 | 2.962 | .000 | .985 | 103 |

a. Dependent Variable: EMI.EFFECTS




**Results and Discussion**

The purpose of the study was to determine and describe the perceptions of teachers regarding English-medium (EMI) at secondary education in Punjab Pakistan and to find out whether instructional process was influenced by EMI from the viewpoint of teachers.

**Benefits for EMI:** The results provided a clear answer to the position of teachers about English-medium instruction (EMI). The data obtained from the EMI scale indicated that teachers did not favor English as

a medium of instruction at secondary education. But they appreciate that there are certain benefits of English medium instructions. Both Science and Mathematics teachers understand the benefits of EMI. Mostly teachers 76 % considered that there are benefits of EMI, therefore they had the reasons to favor the EMI instructions. Both groups' male and female teachers appreciate the benefits of EMI. While male found EMI more useful than female. More males 77% are found English medium instruction useful than female 67%. Teachers have reasons to support EMI in Mathematics and Science subjects (Table 1). Although, teachers considered the EMI are useful to compete in the world but there are issues in English Medium Instructions

**Teacher's Competency in EMI:** The results revealed that mostly teachers (70%) felt that teachers do not have appropriate skills to teach Mathematics and Science subjects in EMI. Most of them (74%) thought that teachers had problem teaching Mathematics and Science subjects in EMI. 75% teachers use Urdu to explain the content (Table2). 75% teachers use Urdu to explain the content. 76% think that students do not understand in English. It was found that the main problem encountered by teachers was in explaining concepts in English. Students also have problems understanding concepts of mathematics and Science in English. Teachers responded that students cannot understand when EMI are used to explain the concepts. Then teachers have to use Urdu for instructions for explaining the contents. The main purpose of introducing Medium of instruction English in the learning and teaching of science and mathematics is mainly to support students to learn the language and developments in science and technology. It is possible for students to access the information which is normally available in English language. Teachers generally understand this requirement and therefore are trying to assist this move. Moreover, some of the teachers feel that they lack the required language skills to teach these subjects in English. However, there is certainly a need for these teachers to develop their language skills. It then becomes critical for them to gain mastery of the language of the content of the subject in English. Although Government of Punjab is providing professional development courses/ workshops for these teachers, but these are not enough to address the issue and providing the capacity to teachers to feel confident in teaching English medium.

**Students' competency in Learning Mathematics and Science in EMI:** The results indicated that the percentages of teachers who do not support EMI range Mostly teachers (67% and 69%) felt that students have difficulty in understanding Mathematics and Science instructions English. While (69%) viewed Urdu medium instruction can help students to understand Mathematics better; while 68% considered that teaching Science in Urdu will provide better understanding of concepts (Table 3). Therefore, teachers felt that English Medium Instructions have negative effect upon students. Teachers perceived that in Urdu Medium of Instructions students can understand the concepts of science and Mathematics better. It is easier for students to learn the concepts in their first language as they do not have to go through the laborious process of translation.

## Conclusion and Recommendation

The findings suggest that teachers of science and mathematics recognize that there is need for change in medium of instruction. They are appreciating it and reacting to this change positively. Though, teachers are experiencing problems in EMI not only in their own language insufficiencies, but also their students lacking the required language skills to comprehend their subject contents. The predominant language support mechanisms provided by the Government do not meet their needs. Thus, it is necessary that measures should be taken to support the teachers in the teaching of mathematics and science in English. Language inadequacies of teachers and students should not affect the teachers' ability to deliver the

content and students skills to understand the subject matter. For successful teaching of mathematics and science in EMI, teacher educators and policy makers must make deliberate efforts to meet the needs of the students and teachers concerned. Failing that, the Government has to look into the possibility of returning back the teaching of science and mathematics in the Urdu. However, to generalize findings in the entire country the sample size was too small. Diverse geographical location and bigger sample size possibly will provide different results. A further study can be conducted with bigger sample size is recommended. Moreover, in this study only teachers' views were sought, while students and parents perceptions can also be sought.

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