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# MATHEMATICS LEARNING PERMORMANCE: ITS CORRELATION WITH CHEMISTRY LEARNING PERFORMANCE

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## ABSTRACT

Mathematics is a rigorous, logical, and instrumental subject. Many concepts in chemistry learning is inseparable from mathematics. This study aims to determine the relationship between student learning performance in learning mathematics and chemistry. This research adopted literature analysis, statistical analysis, and interview (from subjective and objective aspects). The data of this study used the mathematics and chemistry scores of 452 students from 6 third-level grades at a secondary school in the city of Guilin. SPSS22.0 software was used to analyze comprehensive data in exploring the correlation between math scores and chemistry scores from various perspectives. Then, several students were interviewed to verify the results of the data analysis from emotional perspectives. The results of the research objectively indicate that there is a strong positive linear relationship between students' mathematics learning achievement and subjectively, students agree that good mathematics performance can improve chemistry scores. Accordingly, mathematics learning performance is related to chemistry learning performance. Teachers can strengthen chemistry knowledge through mathematical knowledge. So, it is recommended that teachers adopt and use appropriate teaching strategies, and strengthen the application of mathematical knowledge in chemistry learning.

# PERFORMA BELAJAR MATEMATIKA: HUBUNGANNYA DENGAN PERFORMA BELAJAR KIMIA

***Kata Kunci:***

Capaian kimia
Capaian matematika
Performa siswa

## ABSTRAK

Matematika adalah mata pelajaran yang ketat, logis, dan instrumental. Banyak konsep dalam pembelajaran kimia tidak dapat dipisahkan dari matematika. Penelitian ini bertujuan untuk mengetahui hubungan performa belajar siswa pada pembelajaran matematika dan kimia. Penelitian ini mengadopsi metode analisis kepustakaan, analisis statistik dan wawancara (dari aspek objektif dan subjektif). Data penelitian ini menggunakan nilai matematika dan kimia dari 452 siswa dari 6 kelas tingkat ketiga pada sekolah menengah di kota Guilin. *Software* SPSS22.0 digunakan untuk menganalisis data yang komprehensif dalam mengeksplorasi korelasi antara skor matematika dan skor kimia dari berbagai perspektif. Kemudian, beberapa siswa diwawancarai untuk memverifikasi hasil analisis data dari perspektif emosi. Hasil penelitian secara objektif yaitu ada hubungan linier positif yang kuat antara performa belajar matematika dan kimia siswa dan secara subyektif yaitu siswa setuju bahwa nilai matematika dapat

mempromosikan nilai kimia. Disimpulkan bahwa performa belajar matematika berhubungan dengan performa belajar kimia. Guru dapat memperkuat pengetahuan kimia melalui pengetahuan matematika. Disarankan guru dapat mengadopsi desain pengajaran dan penggunaan strategi pengajaran yang tepat, serta memperkuat penerapan pengetahuan matematika dalam pembelajaran kimia.



## 1. INTRODUCTION

Mathematics and sciences lesson cannot be separated, these lessons are predicated to have a strong relationship. Mathematics, as a basic subject for all sciences [1], [2], provides thinking methods, expression methods and accurate calculation methods for the study and research of other subjects. Mathematics is an integral part of the high school curriculum[3], [4].

Mathematics and chemistry are two natural basic subjects closely related. In chemistry learning, mathematical calculation is a basic and instrumental knowledge [5], and mathematical thoughts and methods can provide new thoughts and methods for chemistry learning [6]. The study of chemistry at all educational levels requires mathematical knowledge, thought processes, and mathematical skills [7]. Mathematics is the foundation of science [8] because many aspects of science are best described and illustrated by mathematical tools. This lack of math preparation hampers many students' efforts to learn science, and many others to pursue science [5], [9].

For example, in Yin Yadong's paper "On the Infiltration of Mathematical Knowledge in Chemistry Teaching", the application of mathematical ideas of generalization and sets in chemistry teaching is emphasized; in Qian Chun's paper "Application of Mathematical Ideas in Chemical Problem Solving In Qian Chun's article "Application of Mathematical Ideas in Chemical Problem Solving", he emphasizes the need to combine the ideas of mathematical models in solving chemical problems; in Cao Xi Ping's article "Using Mathematical Methods to Solve Chemical Problems", he especially explains that linear equations and inequalities in mathematics are particularly prominent in solving chemical problems [10].

However, in practice, high school students often have learning barriers in the process of learning chemistry because they cannot transfer their mathematical knowledge to the subject. Specifically: From the students' point of view, the places that are not easily understood by students are often closely related to mathematical knowledge[11]–[14], for example, when students first start to learn the chapter of "Quantity of Matter" in Compulsory 1, the students' score rate is always very low, and careful analysis shows that the application of quantity of matter in chemical experiments, molar mass, concentration, chemical reaction rate, etc. all require a certain For example, in the study of crystal structure, students need to have good mathematical three-dimensional spatial imagination; in chemical experimental problems, images are usually used to describe the reaction process, which requires certain logical reasoning and data analysis skills. Many of the difficulties encountered in learning chemistry have a lot to do with not having a good foundation in mathematics. Therefore, if this difficulty can be solved, students' chemistry learning will definitely have a qualitative leap.

In terms of teaching, chemistry teachers do not pay enough attention to the mathematical knowledge, mathematical methods and mathematical ideas involved in their teaching, and lack systematic summaries [5], [7]. Teachers always assume that students have learned them in math class and overestimate their ability to transfer

knowledge. In fact, many students get stuck on the foundations of mathematics, and it may be better to spend some effort to break through students' difficulties in related mathematics.

In addition, in some new classes, teachers often bypass some derivation and calculation problems that involve the application of mathematical knowledge and are relatively difficult, such as the problem of calculating the equation of chemical equations [15], which some teachers even ignore directly. In this way students actually just remember the conclusion and do not really understand the logic and process involved [16].

Therefore, at this stage, not only do students have some difficulties in transferring mathematical knowledge to chemistry learning, but teachers also have some bias in understanding students' knowledge transfer ability [17]. If both teachers and students form a correct understanding of the connection between mathematics and chemistry, and teachers implement more appropriate teaching strategies while focusing on the relationship between mathematics and chemistry subjects, the problems mentioned above can be overcome to some extent and will be more helpful to students' overall development [2], [18].

Several researchers have studied the correlation between mathematics and chemistry, such as: Adigwe examined the significant impact of the correlation between math skills and chemistry achievement [6], Gultepe once tested the effect of mathematical understanding and skills on solving chemistry problems [19], Francis used analysis of covariance (ANCOVA) and multiple classification analysis (MCA) to find that mathematical ability had a significant impact on students' grades and attitudes towards chemistry performance [20], and Babayeva's research proved that there is a significant relationship between students' ability to solve algorithmic problems and learning chemistry concepts [7]. However, there are no previous studies that provide scoring ratings and inform the average standard error to ensure that the data has good stability.

In order to better study the correlation between math scores and chemistry scores, this paper, under the guidance of education experts, took the final examination scores of grade three students in Quanzhou High School in Guilin in January as the research object [21]. Based on the research background and research innovation, this study has a objectively and subjectively research problem is: (1) Objectively, is there a correlation between math scores and chemistry scores? If so, how strong is the correlation? And (2) Subjectively, do students believe that there is a relationship between their math and chemistry grades? And do the perceptions of students vary from class to class?

## 2. METHOD

### *2.1 Research Method*

The research method adopted in this paper is a hybrid method, including literature analysis, statistical analysis and interview methods [9], [10], which are commonly used in data research processes [22], [23]. On top of that, after completing final exams in the first semester of senior year, the researchers collected math and chemistry scores from school students as data for the study. After completing the data in Excel, SPSS22.0 software was used for comprehensive data analysis to explore the correlation between math scores and chemistry scores from multiple perspectives. Then, some students were interviewed to verify the results of data analysis from the perspective of emotion.

This paper studies from subjective and objective aspects. Objectively, is there a linear correlation between math scores and chemistry scores? If correlation, can we get their correlation coefficients using Pearson correlation analysis? Based on these questions, this paper first analyzed the reliability of the data by using Alpha coefficient analysis, and then initially determined whether there was a linear correlation between math and chemistry scores by drawing a scatter plot with SPSS.22 software. After the preliminary judgment of linear correlation, then by drawing P-P diagram and K-s test whether it obeyed normal distribution, after the basic statistics were obtained to ensure their stability, finally Pearson correlation analysis was conducted to obtain the correlation coefficients of math and chemistry scores of six classes [24]–[26]. Subjectively, one student from each of the three levels of classes A, B, and C (three students in total) was randomly selected to be interviewed to find out whether the students believed that their performance in mathematics was related to their performance in chemistry.

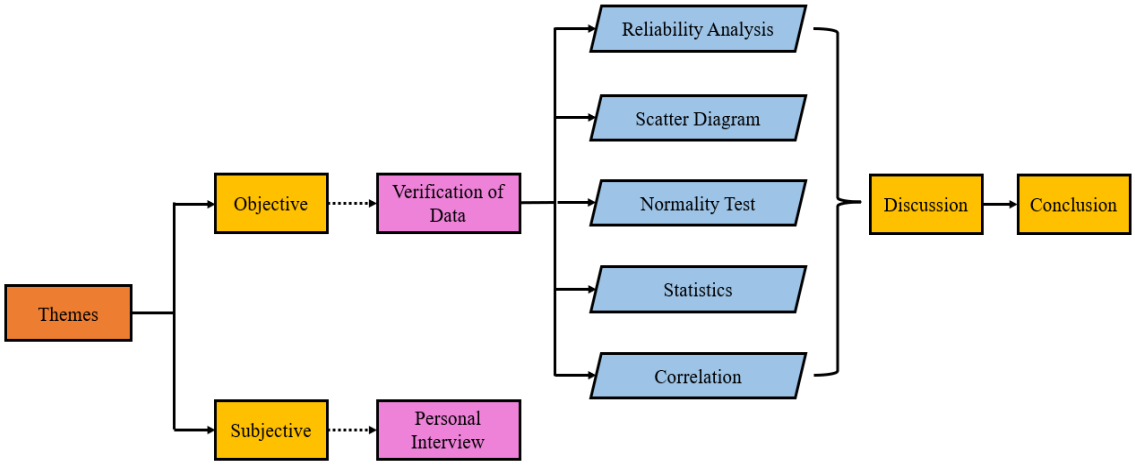


**Figure 1.** Research Flowchart

## 3. RESULTS AND DISCUSSION

### *3.1 Reliability Analysis*

Before conducting the study, the reliability analysis was conducted on the math and chemistry scores of the six classes. In SPSS, we clicked on "Analysis"-"Scala"-"Reliability Analysis", and we could get the Cronbach's alpha coefficients for each of the six classes' alpha coefficient for each of the six classes, and the analysis results are shown in Table 1. As can be seen from Table 1, the reliability of the six selected classes is above the "good (high reliability)" level, which indicates that the mathematics and chemistry scores of these six classes have good reliability and the data are valuable for research.

**Table 1.** Cronbach's Coefficient

| Score | N | Coefficient | Level |
|---|---|---|---|
| MA1 & CA1 | 79 | .718 | Good |
| MA2 & CA2 | 71 | .708 | Good |
| MB1 & CB1 | 74 | .711 | Good |
| MB2 & CB2 | 79 | .779 | Good |
| MC1 &CC1 | 74 | .760 | Good |
| MC2 & CC2 | 75 | .816 | Very Good |

### *3.2 Scatter Plot*

In order to initially determine whether there is a correlation between math scores and chemistry scores, this paper first draws scatter plots to observe whether the two variables change regularly. As Figure 2 shows the scatter plots of six classes, where math scores are the independent variable and chemistry scores are the dependent variable.

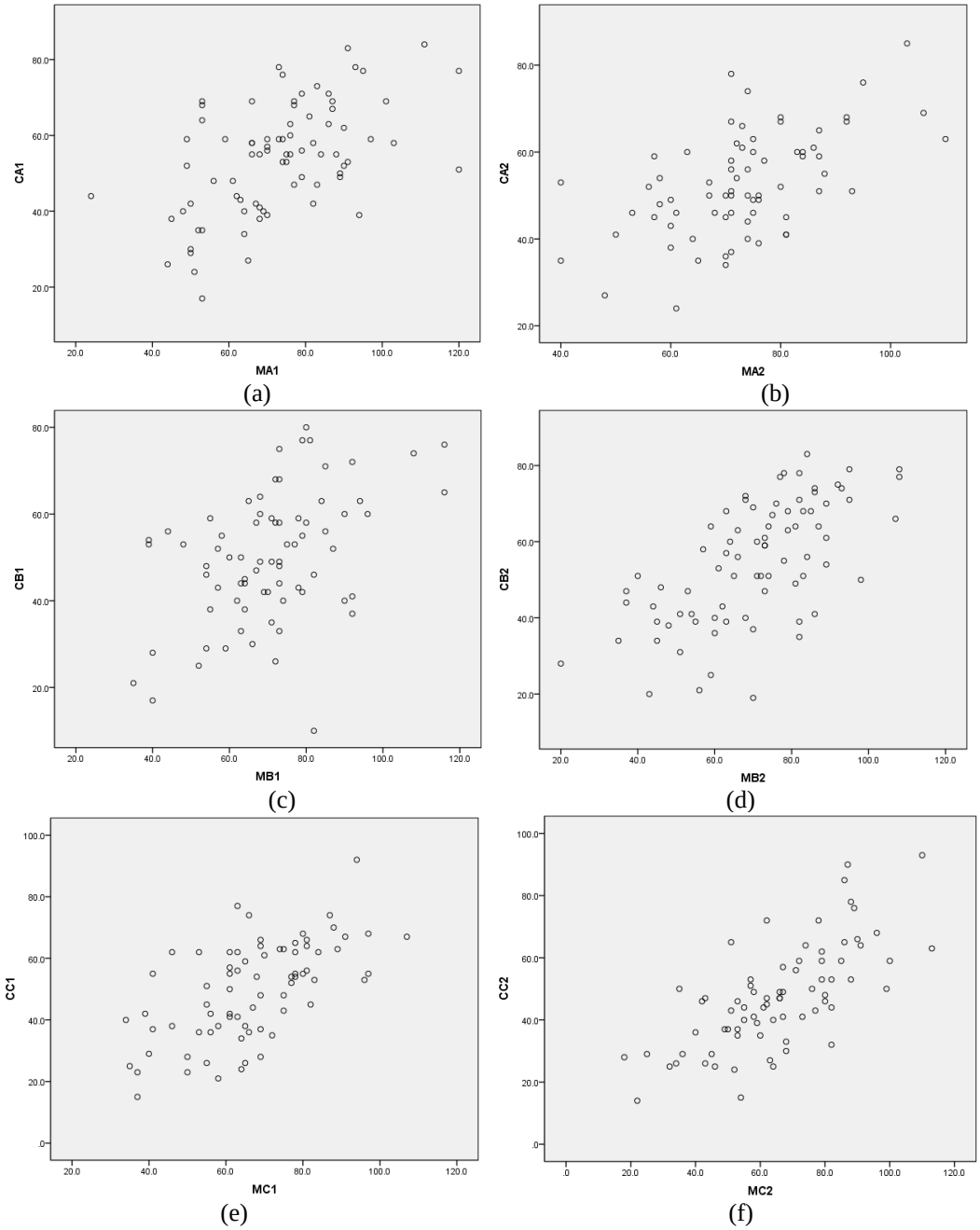


**Figure 2.** (a) MA1 & CA1, (b) MA2 & CA2, (c) MB1 & CB1, (d) MB2 & CB2, (e) MC1 & CC1, and (f) MC2 & CC2

From Figure 2, the scattered point distribution on the whole presents an inclined ellipse. In the area with dense scatters, the larger the abscissa of the scatters is, the larger the ordinate is generally (that is, the higher the score of mathematics is, the higher the score of chemistry is). Therefore, it can be preliminarily known that there should be a linear correlation between the score of mathematics and chemistry, or that the score of mathematics has an influence on the score of chemistry. According to the number and

density of dots on the figure, we can roughly see that the ellipses of scatter distribution in Figure 2 (d), 2 (e) and 2 (f) are narrower and longer than those in other figures, indicating that the correlation between math scores and chemistry scores of these classes may be higher. However, the specific degree of correlation needs to be further calculated to measure the correlation coefficient.

### *3.3 Normality Test*

The Pearson correlation coefficient requires the variables to be normally distributed, so before calculating the correlation coefficient, it is necessary to determine whether both variables obey normal distribution or approximate normal distribution. In this paper, we first use the descriptive method to observe, and click "Analysis"-"Descriptive Statistics"-"P-P diagram" in SPSS software, and get 12 P-P diagrams respectively, of which Figure 3 are the normal P-P diagrams of the math and chemistry scores of class A1, from which we can visually see that the data are very close to the trend line, indicating that the samples are normally distributed; then we analyze them by quantitative methods, and when the sample size is greater than 50, we use the K-S test results, and click on "Analysis" in SPSS software"-"non-parametric test"-"old dialog box"-"single sample K-S", you can get the results of the normality test for six classes (as shown in Table 2 shown).

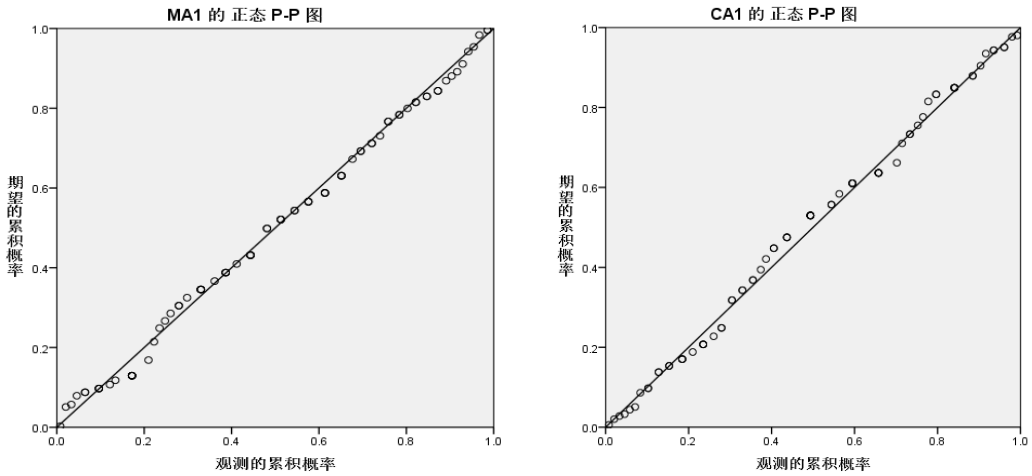


**Figure 3.** Diagrams of the Math and Chemistry Scores of Class A1

**Table 2.** Normality Test Result

| Model | Sig. | Decision | Conclusion |
|---|---|---|---|
| MA1 | .793 | $H_0$ is not rejected | Normal |
| CA1 | .779 | $H_0$ is not rejected | Normal |
| MA2 | .300 | $H_0$ is not rejected | Normal |
| CA2 | .955 | $H_0$ is not rejected | Normal |
| MB1 | .686 | $H_0$ is not rejected | Normal |
| CB1 | .993 | $H_0$ is not rejected | Normal |
| MB2 | .917 | $H_0$ is not rejected | Normal |
| CB2 | .692 | $H_0$ is not rejected | Normal |
| MC1 | .814 | $H_0$ is not rejected | Normal |
| CC1 | .515 | $H_0$ is not rejected | Normal |
| MC2 | .981 | $H_0$ is not rejected | Normal |
| CC2 | .594 | $H_0$ is not rejected | Normal |

As can be seen from Table 2, the significance probabilities of the math and chemistry scores of the six selected classes were greater than 0.05, and they all obeyed a normal distribution, indicating that the scores of these classes were holistic and representative, which met the statistical significance of the study, so the Pearson correlation coefficient could be used.

### *3.4 Different of Mathematics and Chemistry Scores*

In order to observe the stability of these scores, we then analyzed the basic statistics of the six classes, such as mean scores, standard deviations, and standard errors of the means, and the results are shown in Table 3.

**Table 3.** Paired Sample Statistics

| Score | | Average Value | N | Standard Deviation | Standard Error of the Mean |
|---|---|---|---|---|---|
| 1 | MA1 | 73.063 | 79 | 17.7701 | 1.9993 |
| | CA1 | 53.911 | 79 | 14.5938 | 1.6419 |
| 2 | MA2 | 73.042 | 71 | 13.5651 | 1.6099 |
| | CA2 | 52.620 | 71 | 11.9611 | 1.4195 |
| 3 | MB1 | 70.838 | 74 | 16.5331 | 1.9219 |
| | CB1 | 49.973 | 74 | 14.9565 | 1.7387 |
| 4 | MB2 | 70.316 | 79 | 17.8660 | 2.0101 |
| | CB2 | 54.658 | 79 | 15.8825 | 1.7869 |
| 5 | MC1 | 66.932 | 74 | 16.2703 | 1.8914 |
| | CC1 | 49.757 | 74 | 15.7496 | 1.8309 |
| 6 | MC2 | 65.284 | 74 | 20.0790 | 2.3341 |
| | CC2 | 47.440 | 74 | 16.6086 | 1.9178 |

As can be seen from Table 3, the means of the mathematics and chemistry scores of these six selected classes show three different levels, but the two indicators of standard deviation and standard error of the mean are very close to each other. This indicates that the students' math scores and chemistry scores have good stability in the overall level in different levels of classes and different teaching environments, and these stable data are helpful for us to exclude some objective factors and experimental errors caused by unstable factors, and to draw conclusions that are more in line with the facts.

### *3.5 Mathematics and Chemistry Correlation Scores*

From the above analysis, we can see that there is also a linear correlation between math and chemistry scores, and that the math and chemistry scores of the six classes have the property of maintaining normality and stability. To describe the strength of this association, We click "analysis" - "Correlation" - "bivariate" of SPSS, put the left variable into the right variable box, check "mean and standard deviation" in "options", check "Pearson", "double tail" and "Mark significance correlation" in the inspection interface, Click "OK" to get the Pearson correlation coefficient of math and chemistry scores of each class, and the results are shown in Table 4.

**Table 4.** Pearson Correlation Coefficient

| Score | | N | Correlation Coefficient | Sig. |
|---|---|---|---|---|
| 1 | MA1& CA1 | 79 | .534 | .000 |
| 2 | MA2& CA2 | 71 | .552 | .000 |
| 3 | MB1& CB1 | 74 | .553 | .000 |
| 4 | MB2& CB2 | 79 | .643 | .000 |
| 5 | MC1& CC1 | 74 | .613 | .000 |
| 6 | MC2& CC2 | 74 | .700 | .000 |

**Table 5.** Relationship between Correlation Coefficient and Two Variables

| *r* | **Category** |
|---|---|
| $0.8 \leq r \leq 1$ | Height related |
| $0.5 \leq r < 0.8$ | Moderately related |
| $0.3 \leq r < 0.5$ | Low related |
| $r < 0.3$ | Weak |

The relationship between correlation coefficient and two variables on the Table 5 show that, the correlation coefficients of math and chemistry scores in all classes are greater than 0.5, and even the correlations of the last three classes are above 0.6, which indicates that math scores and chemistry scores show a strong positive linear relationship, and all of them are moderately correlated against the criteria in Table 5. Moreover, their significance probabilities are all 0.00, which is less than 0.05, indicating that the correlation between math scores and chemistry scores in these six classes is good and statistically significant. In the Chinese college entrance examination, the full score of math is 150 and the full score of chemistry is 100. If we look at the data of class B2, when a student scores 120 in math, his chemistry score can reach 120*0.643=77.16, which is already a very good score in most classes.

### *3.6 Personal Interviews*

The statistical analysis of the data above showed that there is a strong positive linear relationship between performance in mathematics and performance in chemistry. At the subjective level, students' subjective feelings on the question of whether learning mathematics well helps them to learn chemistry are also important. If students have a strong sense of belief about whether learning mathematics helps them to learn chemistry, they will be motivated to learn mathematics and will develop positive values that will influence their perceptions of learning.

So for the students themselves, do they agree that learning math well is helpful to the study of chemistry? Based on this, five questions were designed and one student from each of classes A1, B1, and C1 was selected to answer them. The interview questions and responses are shown in Table 6.

**Table 6.** Student Interview

| **Question** | **Students** | **Answers** |
|---|---|---|
| What mathematical knowledge do you think is more closely related to chemical knowledge? | 1 | Density calculations, PH calculations, particle conservation, etc. require solid knowledge of mathematical calculations. |
| | 2 | The study of oxidation reactions will use knowledge of sets in mathematics, and chemical equations often require some mathematical methods to be leveled. |
| | 3 | In terms of images, such as molecular structure diagrams, you often have to draw diagrams to get the logic across. |
| Do you have a weak foundation in math that affects your chemistry studies? | 1 | I am not very good at mathematical calculations, and there are many experimental data in chemistry that need to be processed using mathematical calculations, so I have difficulty in learning topics such as density calculation, pH calculation, and particle conservation. |
| | 2 | In addition, I often failed to use some mathematical skills to balance chemical equations. In terms of drawing, in addition to a clear understanding of spatial arrangement and bonding angles, drawing molecular structure diagrams also requires some logical reasoning skills, which I also lack. |
| | 3 | I just can't find the equivalence or solve the equation easily in chemistry because of my poor foundation in mathematics. |

| | | |
|---|---|---|
| Do chemistry teachers supplement math in the classroom? | 1 | It is often emphasized that although chemistry has a lot of memorization, the teacher will often guide the use of mathematical methods and thinking to understand and reason about chemical equations. |
| | 2 | Occasionally add, when learning something specific, will draw a diagram or use some mathematical model to explain it. |
| | 3 | Usually when the chemical equations are leveled, some mathematical techniques are emphasized, but not much else is said. |
| In what points would you like the chemistry teacher to reinforce the use of mathematics? | 1 | For example, it is easier to understand the relationship between various types of solutions when learning to use a set, as there are many concepts and laws in chemistry, which are easily confused. |
| | 2 | When the calculation is explained slower, the process of calculation is clearly explained. Many complicated leveling processes are skipped or ended quickly by the teacher, and I haven't had time to understand the process. |
| | 3 | I hope the teacher will use more mathematical methods to study the reaction laws of chemistry in depth, to enhance understanding and reduce the burden of memorization. |
| Do you believe that if you do well in math, your chemistry scores can also improve? | 1 | If you're good at math, you shouldn't do badly in science subjects, because I think the math method and mathematical thinking help a lot in learning science subjects. |
| | 2 | Of course, if you do well in math, you won't do any worse in chemistry. |
| | 3 | I agree that most people who do well in math, they also do well in chemistry, but then again, students who do well in chemistry don't necessarily do well in math. |

From the responses in Table 6 can see that these three students agree that "improvement in mathematics can help improve their performance in chemistry", and that many of the difficulties they encounter in chemistry are caused by a poor foundation in mathematics. They also hope that teachers can strengthen the use of mathematics in chemistry, and use mathematical methods and mathematical thinking to help understand chemistry, especially in the area of calculation, and do not easily ignore the calculation process, which is often where students are weak or do not understand. In general, students are more supportive of strengthening the use of mathematical knowledge in chemistry learning and show some enthusiasm. If teachers can make full use of their interest, penetrate more into the use of mathematical knowledge in chemistry learning, and pay attention to cultivating students' learning behavior, students will overcome their fears and will have a positive impact on their learning of mathematics and chemistry.

It can be found that the results obtained in the data test and the personal interview are consistent. In the data test, there is a strong linear correlation between math scores and chemistry scores; In personal interviews, students agreed that learning math well helps chemistry. These results were supported by relevant researchers. For example, Adigwe verified that students' entrance math skills had a significant impact on their chemostoichiometry performance [6], Babayeva's research shows that there is a significant relationship between students' ability to solve algorithm problems and their learning of chemical concepts [17], Gultepe also indicated that conceptual understanding and mathematical skills play an effective role in students' correct solving of chemical problems [19], Francis' research also shows that students' mathematical ability has a significant impact on their attitude towards chemistry learning [20]. This study innovatively arranged the math scores of 14 classes in order from large to small, selected three groups of classes with different levels according to the rankings, and tested the relationship between math scores and chemistry scores with different levels of math

scores as the standard, which has diversity and representativeness. In addition to comparing the difference between the mathematical mean and the chemical mean, the standard deviation and the standard error of the mean were also compared to ensure that the data had good stability and better reflected the overall difference of the math score and chemistry score at different levels. Combined with the personal interviews of students, the results were more convincing.

The important influence of mathematics on the study of chemistry can give us a lot of enlightenment in the field of education. Today, mathematics in its various forms is used in fields such as economics, science, chemical and energy development, engineering and technology, and has become an indispensable tool for national development. We should profoundly realize the importance of mathematics in other disciplines, in the teaching activities, mathematics teaching should make students understand the history of mathematics and other subjects of many links, should be open widely used writing assignments, projects and cooperative learning groups, teachers should use various teaching strategies, and using a wide range of examples to help students understand the relationship between mathematics and chemistry knowledge [27].

Through the above research, we found that there is a strong linear correlation between mathematics and chemistry. These results are supported by relevant researchers. For example, Adigwe found that students' mastery of entrance math skills has a significant impact on their chemostoichiometry performance [6], Babayeva's research shows that there is a significant relationship between students' ability to solve algorithm problems and learning chemical concepts [17], Gultepe's research results show that conceptual understanding and mathematical skills have an effective effect on students' correct solving of chemical problems [19]. In Francis's research, mathematical ability has A significant impact on students' grades and attitudes towards chemical dynamics, suggesting that only students with A good mathematical background can perform well in quantitative aspects of chemistry [20].

However, students also reflect that the study of chemistry will be affected because the foundation of mathematics is not solid, which is the phenomenon of negative transfer and a certain degree of lag in the current high school teaching. Teachers should correct the fuzzy cognition, break the subject standard, pay more attention to the connection between subjects in teaching, and eliminate the difficulties in chemistry learning caused by the students' weak mathematical foundation in time. In Gultepe's study, students' answers in the interview process also led to the conclusion that conceptual understanding and mathematical processing skills are conducive to solving chemical problems [19].

Combined with the feedback in the interview, it is a prominent problem that students have difficulty in chemistry learning due to their poor mathematical calculation skills. Mathematical calculation is a basic and instrumental knowledge for the science of chemistry and biology. Many problems of chemistry and biology need to be solved by mathematical calculation. Previous reports [27]-[32] found that students performed poorly in chemistry and stoichiometry, which is a difficult topic for students.

In addition, mathematical thoughts and methods can provide new thoughts and methods for the study of science, chemistry and biology [33], [34], there may be unexpected solutions to many problems of science, chemistry and biology by applying mathematical thinking. In addition, in all kinds of large-scale examinations, mathematics plays a very important role in high school curriculum learning, and the proportion of mathematics score is very high. Therefore, doing well in math is one of the key factors for success in exams. Concept understanding and math skills play an effective role in

students' correct solution to chemical problems [19]. Both teachers and students should make clear the importance of math learning.

## 4. CONCLUSION

Through the research of this paper, we can draw the following conclusions: at the objective level, there is a strong positive linear relationship between mathematics and chemistry. If students' mathematics scores can be improved, their chemistry scores will also be of great help. On the subjective level, students accept the view that mathematics score can promote chemistry score, and they will affect the study of chemistry knowledge because of the weak mathematical foundation. They also hope that teachers can use more mathematical methods to explain chemistry knowledge points in class. We should make clear the promotion effect of mathematics achievement on chemistry achievement, adding examples of using mathematics in chemistry in daily life to the teaching. Focus on the relationship between mathematics and chemistry in high school, adopt appropriate teaching design, the use of appropriate teaching strategies, strengthen the application of mathematical knowledge in chemistry learning, and clear the importance of mathematics learning, to improve students' mathematical basis in the important position, it helps students to master the knowledge of the system, to achieve the comprehensive development.

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