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# STUDENTS' PERCEPTIONS TOWARD VITAMIN EDUCATION SUPPORT SERVICE

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## ABSTRACT

Vitamin is an education support service which is compatible with the MNE's curricula, is accessible through the internet, and was developed for teachers and students. Vitamin's purpose is described as helping students better understand lessons and realizing full learning. Vitamin provides students and teachers with e-education solutions blended with state of the art visual content and interaction and offering a personalized learning process. The present study aims to determine students' perceptions toward Vitamin's effectiveness and usefulness. It is a descriptive study designed on the basis of the survey model.

The study group consists of 688 students studying in the $4^{th}$-$8^{th}$ grades in Husnu M. Ozyegin Primary School in the central province of Kirsehir. The data were collected using the Scale on Students' Perceptions toward Vitamin ($\alpha$=0.956) developed by the researchers. The collected data were analyzed using frequency, percentage, arithmetic means, standard deviation, Anova and LSD statistics. The results obtained through the analyses could be summarized as follows: Most of the students find Vitamin useful. Besides their positive views about Vitamin, the students also think that Vitamin may have adverse effects for them. A great majority of the students do not use Vitamin. The more frequent the students use Vitamin, the more positive their attitudes toward Vitamin. Furthermore, the levels of positive perceptions among the students who never use Vitamin are lower than those of others. The students' positive views about Vitamin decrease with increasing grade level, while their negative views increase.

**Keywords:** Computer, internet, education, Vitamin, blended learning, online learning.

## INTRODUCTION

Given education's increasing importance, one cannot possibly overlook the possibility of educating individuals out of the reach of formal education. In this context, the most significant application to be offered as a solution is distance education (Ekici, 2003). Distance education could be defined as training students individually where they live without the need for a physical school environment when the instructor is geographically distant (Tuncer and Taspinar, 2007; Keegan, 1986). In distance education, teachers and students can be gathered together using various technologies. For Moore and Thompson (1990, 8), such means include printed materials and books, as well as audio-visual recordings and cable or satellite interactive teleconferences. This type of education is also supported using environments such as teleconferences and web-based education depending on technological developments (Ergul, 2007). Odabas (2004) argues that certain changes have been caused in education by the increasing use of information technologies at individual and institutional levels in Turkey (cited in Turan and Colakoglu, 2008).

All such developments led to the introduction of new concepts and definitions to the field of distance education. For instance, Odabas (2003) broadly refers to interactive data exchange through sophisticated technological means between students and educators who are distant from each other as "Internet-Based Distance Teaching". Sebetci (2008) argues that the interface used to transfer documents containing texts, images, sounds, real motion videos, simulations and animations synchronously or asynchronously between students and the instructor using the internet and computer instruments could be termed as "Web-Based Distance Education". Horton (2000) uses the concept of "Web-Supported Teaching" to refer to the use web technologies to educate individuals. Instead of these concepts, the concept of "Online Learning" is also used in the literature.

As a result of the rapid advances in information technologies, online learning/teaching environments have increasingly become more widespread. However, the fact that online learning/teaching environments lack many important advantages of face-to-face environments led to the emergence of the concept of blended learning (Korkmaz, Karakus, 2009). Therefore, integrated use of online learning and conventional learning environments is argued to be much more efficient in solving educational problems and meeting educational needs (Murphy, 2003). By combining various models of face-to-face educational environments and distance education environments, blended learning allows using all technological means and joining the strongest and more advantageous aspects of both environments to provide effective and efficient teaching (Signh, 2003; Usta, 2007; Horton, 2000). Morgan (2002) and Young (2002) defined blended learning simply as using the best aspects of both methods.

As for the examples of such applications in Turkey, it could be argued that the educational potential offered bt information and communication technologies is still not sufficiently employed to meet educational needs. Nevertheless, Ozkul (2004) notes that important projects on the subject are underway. Vitamin education support service can be cited as an example for such projects. Vitamin is an education support service which is compatible with the MNE's curricula, is accessible through the internet, and was developed for teachers and students. Vitamin's purpose is described as helping students better understand lessons and realizing full learning (SEBIT, 2010). Vitamin provides students and teachers with e-education solutions blended with state of the art visual content and interaction and offering a personalized learning process (SEBIT, 2010). On the other hand, different versions of Vitamin are available for many countries. Examples include "Adaptive Curriculum" US version, "form2" Malaysian version, "Tianyi" Chinese version and "m3com" Saudi Arabia version (SEBIT, 2010; Adaptive Curriculum, 2010). Vitamin education support service offers two different kinds of content for elementary and high school levels. As the subject of this study, "Vitamin Elementary" covers the subjects of Mathematics, Science and Technology, Turkish and Social Studies from $4^{th}$ to $8^{th}$ grades of primary schools. It contains lesson teaching about these subjects, as well as experiments, exercises, examples and tests developed for students. SEBIT (2010) notes that all Vitamin content is compatible with the Ministry of National Education curricula and that this learning environment was designed by taking into consideration students' individual differences and different learning styles. In addition to its smart characteristics like detailed performance monitoring about students, through the nation-wide examinations, it also allows thousands of students participating in these examinations to assess themselves at school, province and national levels.

Certainly, one basic requirement for this system's usefulness is its attraction for students. Arguably, Vitamin's attraction for students is directly related to how they perceive it. This study aimed to reveal students' positive and negative perceptions toward Vitamin's usefulness.

*Problem Statement:* What are students' perceptions toward Vitamin?
*Sub-Problems*

1. What are the students' perceptions toward Vitamin's usefulness?
2. What are the students' perceptions toward Vitamin's adverse effects?

3. 3 Do the students' perceptions differ with the frequency of Vitamin use?
4. Do the students' perceptions differ with grade level?

## METHODOLOGY

### Research Model

This is a descriptive study designed on the basis of the survey model. As is known, descriptive studies aim to describe the cases involved.

On the other hand, survey models mainly aim to reveal an existing situation in the way it exists and using an objective approach (Karasar, 1999). Similarly, the present study attempts to describe the students' perceptions about Vitamin.

### Study Sample

The study sample consists of a total of 688 students studying in the $4^{th}$-$8^{th}$ grades in Husnu M. Ozyegin Primary School in the central province of Kirsehir. Table 1 summarizes the sample-group students' distribution according to their grade levels.

Table 1
Students' Distribution according to their Grade Levels

| *Grade Levels* | *Number of Students* |
|---|---|
| 4 | 203 |
| 5 | 104 |
| 6 | 133 |
| 7 | 108 |
| 8 | 140 |
| *Total* | *688* |

### Data Collection Instruments

The data were collected using the Scale on Students' Perceptions toward Vitamin developed by the researchers. When developing the scale, an interview form was used containing seven open-ended questions addressed to the students. The interview form was examined through the method of document examination and as a result of expert opinions; an item pool of 78 items was formed. For the construct validity of the scale, first of all, the data collected during the process of scale development could be subjected to Kaiser-Meyer-Oklin (KMO) and Bartlett test analyses (KMO=0.953, $p<0.001$) to perform factor analysis. Factor analysis was performed on the data to determine the construct validity of the 78-item scale version.

Principle Component Analysis was first performed for the scale to determine whether they are one-dimensional. Varimax orthogonal rotation technique was applied to divide the scale into unrelated factors.

In evaluating the results of factor analysis, the basic criterion involves the factor loadings in the scale which can be interpreted as the correlations between the variables and factors (Gorsuch, 1983: Rummel, 1988).
High factor loadings are considered to indicate that the variable could be included under the factor in question (Buyukozturk, 2002).

As a result of the Principal Component Analysis used for factor analysis and the Varimax Orthogonal Rotation

Technique applied in parallel, a different number of factors were identified in relation to the scale.

The items with factor loadings below .30 and those that are included under multiple factors (39 items in total) were removed from the questionnaire and the same procedure was repeated.

Thus, it was found that the Vitamin Student Perception Scale is divided into two factors. These two factors account for 42.75% of the total variance.

For the first factor containing 27 items under the title "Vitamin's Usefulness", the factor loadings vary between 0.728 and 0.532, with a contribution of 29.84% to the total variance.

This factor has an Eigenvalue of 11.64. For the second factor containing 17 items under the title "Vitamin's Adverse Effects", the factor loadings vary between 0.735 and 0.547, with 12.02% contribution to total variance.

This factor has an Eigenvalue of 5.04. Cronbach Alpha coefficients were computed for the internal consistency studies of the questionnaire. The overall questionnaire with 39 items has an internal consistency coefficient of 0.902, which was calculated as 0.948 for the first factor and 0.809 for the second factor.

### Data Analysis

To analyze the data collected using the Vitamin students' perceptions scale, the responses to the five-point Likert-type scale were taken together, raw scores were computed for each sub-factor, and these raw scores were translated into a standard score ranging between 20 as the lowest and 100 as the highest value.

The data gathered through the perception scale were subjected to frequency, percentage, arithmetic means, t, variance, LSD, and Pearson's r correlation statistics. The significance level of .05 was used in the significance tests for differences and relationships.

Since the students' responses were obtained from a five-point scale, the score ranges were identified in data analysis as follows;

| | | |
|---|---|---|
| 1.00-1.79 | Strongly disagree | (5-1=4/5=0.80) |
| 1.80-2.59 | Disagree | |
| 2.60-3.39 | Undecided | |
| 3.40-4.19 | Agree | |
| 4.20-5.00 | Strongly agree | |

Mean scores calculated on the basis of students' responses are explained using the above levels.

## RESULTS AND INTERPRETATION

### Students' Perceptions toward Vitamin's Usefulness

Table 2 summarizes the results concerning the students' positive perceptions toward Vitamin's usefulness.

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Table 2
Students' Perceptions toward Vitamin's Usefulness

| *Positive Views* | $\overline{X}$ | *Sd* |
|---|---|---|
| Vitamin contributes to my success in lessons. | 3,96 | 1,102 |
| Vitamin helps my assignments. | 4,06 | 1,115 |
| I enjoy studying with Vitamin. | 4,04 | 1,083 |
| I can repeat school lessons using Vitamin any time I want. | 3,86 | 1,219 |
| Vitamin's visual teaching of subjects makes important contributions. | 4,04 | 1,088 |
| Vitamin offers me a special learning environment. | 3,87 | 1,115 |
| Vitamin allows solving the SBS questions of previous years. | 3,91 | 1,140 |
| Vitamin significantly contributes to preparation for SBS examination. | 4,09 | 1,069 |
| Vitamin contributes to the reinforcement of school subjects. | 4,13 | 1,062 |
| I think Vitamin is useful as it offers a teaching style that is different than that of the school. | 3,69 | 1,179 |
| What is learnt through Vitamin is better retained. | 3,77 | 1,151 |
| Vitamin helps me complements my learning at school. | 4,07 | 1,086 |
| Vitamin allows me to take breaks any time I want when I am tired of studying. | 3,91 | 1,137 |
| Vitamin entertains me while studying. | 3,98 | 1,088 |
| I can also make experiments in Vitamin's environment when I need. | 3,93 | 1,159 |
| I think Vitamin improves my thinking skills. | 3,94 | 1,111 |
| The applied teaching of certain lessons on Vitamin helps me. | 4,07 | 1,094 |
| I think I learn faster in Vitamin's environment | 3,74 | 1,174 |
| I believe that I study more efficiently using Vitamin. | 3,75 | 1,149 |
| Vitamin improves my computer skills. | 3,79 | 1,213 |
| Vitamin improves my classroom performance at school. | 3,85 | 1,142 |
| I think using Vitamin is helpful. | 3,99 | 1,098 |
| Vitamin eliminates the time limits to learn the subjects. | 3,71 | 1,187 |
| Vitamin creates a strong willingness to study. | 3,95 | 1,124 |
| I can pause and rewind videos on Vitamin. | 3,93 | 1,151 |
| Vitamin enriches our vocabulary. | 3,90 | 1,112 |
| We can assess our knowledge through the quizzes in Vitamin. | 4,02 | 1,088 |
| General Average | 3,92 | 0,734 |

N=688

As seen in Table 2, the students' positive perceptions towards Vitamin range between $\overline{X}$ =3.69 – 4.13, and the general average is $\overline{X}$ =3.92. Thus, it could be argued that the students "agree" with Vitamin's usefulness.

On the other hand, given the proportion of general average to standard deviation (relative variance coefficient), their perceptions towards Vitamin's usefulness has a normal distribution.

**Students' Perceptions towards Vitamin's Adverse Effects**

Table 3 summarizes the results about the students' perceptions towards Vitamin's adverse effects.

Table 3
Students' Perceptions towards Vitamin's Adverse Effects

| *Negative Views* | $\overline{X}$ | *Sd.* |
|---|---|---|
| I do not use Vitamin as I do not believe it is useful. | 3,01 | 1,469 |
| Studying with Vitamin makes us spend much time on the internet. | 2,48 | 1,303 |
| Vitamin may prevent students from studying by wasting their time. | 2,94 | 1,460 |
| I do not want to use Vitamin as it contains useless games. | 2,88 | 1,437 |
| I think certain lessons I need are missing in Vitamin. | 3,29 | 1,270 |
| Vitamin will not serve very useful as it is a virtual a virtual environment and fails to offer a concrete learning environment like in the classroom. | 3,33 | 1,254 |
| When I sit before the computer to use Vitamin, I cannot help surfing on other websites. | 3,01 | 1,469 |
| We do not need Vitamin because success depends on our own efforts. | 3,06 | 1,349 |
| Vitamin leads students to laziness. | 2,67 | 1,490 |
| Textbooks will seem unnecessary when we have Vitamin. | 2,68 | 1,489 |
| It is hard to compete in the contests in Vitamin. | 3,07 | 1,341 |
| Vitamin breaks down students' communication with their parents. | 2,59 | 1,558 |
| General Average | 2,91 | 0,801 |

N=688

As it is clear from Table 3, the students' perceptions toward Vitamin's adverse effects range between $\overline{X}$ =2.48 – 3.33, and the general average is $\overline{X}$ =2.91. So arguably, the students are "uncertain" about Vitamin's adverse effects. To sum up, it could be argued that most students find Vitamin useful; however, they also believe that it has adverse effects on them.

**Frequency of Vitamin Use among Students**

Table 4 summarizes the results regarding the students' frequency of Vitamin use for their lessons.

Table 4
Frequency of Vitamin Use among Students

| *Frequency of Use* | *f* | *%* |
|---|---|---|
| Never | 408 | 59,3 |
| Once a month | 91 | 13,2 |
| Once a week | 106 | 15,4 |
| More | 83 | 12,1 |

| | | |
|---|---|---|
| *Total* | *688* | *100,0* |

As shown by Table 4, more than half of the students (59.3%) never use Vitamin, while 13.2% use it once a month. The rate of students who frequently (more than once a week) use Vitamin is 12.1%.

Thus, it can be claimed that a great majority of the students do not use Vitamin. Table 5 summarizes the results concerning the differentiation in the students' perceptions towards Vitamin according to their frequency of use.

Table 5
Means for the Students' Perceptions according to Frequency of Use

| *Frequency of Use* | | *N* | $\overline{X}$ | *Sd.* |
|---|---|---|---|---|
| Students' Perceptions toward Vitamin's Usefulness | Never | 408 | 76,74 | 15,20 |
| | Once a month | 91 | 81,15 | 14,28 |
| | Once a week | 106 | 79,91 | 13,13 |
| | More | 83 | 82,32 | 13,24 |
| | Total | 688 | 78,49 | 14,69 |
| Students' Perceptions towards Vitamin's Adverse Effects | Never | 408 | 58,83 | 15,51 |
| | Once a month | 91 | 56,19 | 16,13 |
| | Once a week | 106 | 58,73 | 16,05 |
| | More | 83 | 57,61 | 18,36 |
| | Total | 688 | 58,32 | 16,03 |

As it is clear from Table 5, there are differences between the students' mean perception scores both towards the positive and negative effects of Vitamin in terms of their frequency of use. Table 6 presents the results of the variance analysis performed to determine whether these differences are significant.

Table 6
Differentiation between Students' Perceptions in terms of Frequency of Use

| | | *Sum of Squares* | *df* | *Mean Square* | *F* | *Sig.* | *LSD* |
|---|---|---|---|---|---|---|---|
| Vitamin's Usefulness | Between Groups | 3321,947 | 3 | 1107,316 | 5,228 | ,001 | Among the others who never use it |
| | Within Groups | 144872,074 | 684 | 211,801 | | | |
| | Total | 148194,021 | 687 | | | | |
| Vitamin's Adverse Effects | Between Groups | 578,798 | 3 | 192,933 | ,750 | ,523 | - |
| | Within Groups | 176037,723 | 684 | 257,365 | | | |
| | Total | 176616,521 | 687 | | | | |

As seen in Table 6, the students' frequency of Vitamin use results in a significant difference upon their positive perceptions towards Vitamin ($F_{(3-684)}$=5.228; $p<0.05$), while it does not lead to any significant difference on their negative perceptions.

This significant difference in the students' perceptions towards Vitamin's positive effects as revealed by their frequency of Vitamin use is between the students who never use it and the remaining groups.

Those who never use it have a mean score of $\overline{X}$ =76.74, while those who use it once a month have a mean score of $\overline{X}$ =81.15, those using it once a week have a mean score of $\overline{X}$ =79.91, and those who use it more than once a week have a mean score of $\overline{X}$ =82.32. So it suggests that the students have higher positive perception levels towards Vitamin with increasing frequency of use, and the perception levels of those who never use Vitamin are quite lower when compared to the others.

**Differences in Students' Perceptions according to their Grade Levels**

Table 7 summarizes the results about the students' perceptions towards Vitamin according to their grade levels.

Table 7
Students' Perceptions according to their Grade Levels

| *Grade Levels* | | *N* | $\overline{X}$ | *Sd.* |
|---|---|---|---|---|
| Students' Perceptions toward Vitamin's Usefulness | 4 | 203 | 79,51 | 14,38 |
| | 5 | 104 | 81,23 | 12,33 |
| | 6 | 133 | 81,36 | 12,55 |
| | 7 | 108 | 72,63 | 14,06 |
| | 8 | 140 | 76,74 | 17,51 |
| | *Total* | *688* | *78,49* | *14,69* |
| Students' Perceptions towards Vitamin's Adverse Effects | 4 | 203 | 56,45 | 15,78 |
| | 5 | 104 | 57,37 | 15,63 |
| | 6 | 133 | 55,85 | 16,01 |
| | 7 | 108 | 60,82 | 14,30 |
| | 8 | 140 | 62,14 | 17,21 |
| | *Total* | *688* | *58,32* | *16,03* |

An examination of the results in Table 7 according to their grade levels reveals that there are differences between the students' mean perception scores both about Vitamin's positive and negative effects. Table 8 presents the results of the variance analysis performed to determine whether these differences are significant.

Table 8
Differences between Students' Perceptions according to their Grade Levels

| | | *Sum of Squares* | *df* | *Mean Square* | *F* | *Sig.* | *LSD* |
|---|---|---|---|---|---|---|---|
| Vitamin's Usefulness | Between Groups | 6220,690 | 4 | 1555,173 | 7,482 | ,000 | Between the 7th class and other classes; Between the 8th class and 5,6,7th classes |
| | Within Groups | 141973,331 | 683 | 207,867 | | | |
| | Total | 148194,021 | 687 | | | | |
| Vitamin's Adverse Effects | Between Groups | 4330,827 | 4 | 1082,707 | 4,292 | ,002 | Between the 7th class and 4, 6th classes; Between the 8th class and 4, |
| | Within Groups | 172285,694 | 683 | 252,248 | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total | 176616,521 | 687 | | | | 5, 6th classes |

As is clear from Table 8, students' grade levels lead to a significant difference in students' positive ($F_{(4-683)}$=7.482; p<0.05) and negative ($F_{(4-683)}$=4.292; p<0.05) perceptions towards Vitamin.

This significant difference caused by grade levels on the students' perceptions towards Vitamin's positive effects is between the 7th-grade students and those in other grades, and between the 8th-graders and the 5th-6th-7th-graders. The mean score for 7th-graders is $\overline{X}$ =72.63 and for 8th-graders $\overline{X}$ =76.74, while the 4th-graders' mean score is $\overline{X}$ =79.51, the 5th-graders' mean score is $\overline{X}$ =81.23, and the 6th-graders' mean score is $\overline{X}$ =81.36.

This suggests that the level of positive perceptions towards Vitamin is lower with increasing grade levels.

The significant difference caused by grade levels in the students' perceptions towards Vitamin's adverse effects is between 7th-graders and 4th-6th-graders, and between 8th-graders and 4th-5th-6th-graders. The mean score is $\overline{X}$ =60.82 for 7th-graders and $\overline{X}$ =62.14 for 8th-graders, while it is $\overline{X}$ =56.45 for 4th-graders, $\overline{X}$ =57.37 for 5th-graders and $\overline{X}$ =55.85 for 6th-graders. As this result suggests, the higher the grade levels, the higher the level of negative perceptions towards Vitamin.

## CONCLUSIONS

- Most students find Vitamin useful. This might have been the result of the students' high attitudes towards information technologies. As a matter of fact, the literature contains numerous studies demonstrating that students have positive views towards information technologies and perceive them as sources of information (Kose, Gezer, 2006; Yolan, Kozak, 2008).

  A study by Yancinalp and Askar (2008) reports that students prefer computer and internet environments to books, a preference partially caused by the perception that following and learning textbook materials is difficult. The main factors for students' preference for computers include computers' characteristics such as its practicality, usefulness, high capacity and the fact that it creates time for them and control over subjects. On the other hand, it is reported that students' perception of the internet as an interesting, up-to-date and wide information source plays a significant role in their preference for the internet.

  As reported in a study on computer-assisted education, the students prefer a method through which they can study on themselves and refer to their teachers for help only when necessary to a method in which the teacher, as the authority in the classroom, teaches the subject (Akcay, Tuysuz and Fevzioglu, 2003). Nevertheless, parents' contribution might also be effective in students' positive perceptions towards these technologies.

  A study by Aksut et al. (2008) notes that parents do not present a preventive attitude with regard to elementary-level children's internet use; rather, they support the use of information technology in their children's education.

- Besides their positive views about Vitamin, the students also think that Vitamin may have adverse effects upon themselves. This could be attributed to the ideas that Vitamin does not cover certain lessons, fails to provide a concrete learning environment, communication with parents is weakened during Vitamin use, success depends on individual efforts, and by their disbelief in Vitamin's benefits.

On the other hand, this may have also been the result of the students' suspicions about the reliability of the information on the internet. A study conducted by Yalcinalp and Askar (2003) reports that students do not want to abandon researching on the internet, but feels suspicious about the accuracy of the information obtained from the internet.

- A great majority of the students do not use Vitamin. This could be attributed to factors such as the insufficient promotion of Vitamin, inadequate use of Vitamin by teachers during classes, their lack of encouragement for students to use Vitamin, and lack of such technologies at students' homes. The more frequent students use Vitamin, the more positive their perceptions towards Vitamin are.

  Moreover, the levels of positive perceptions among the students who never use it are lower when compared to others. The literature contains study results demonstrating that students' attitudes towards computer and internet technologies are higher with their increasing use of computers and the internet (Celik and Bindak, 2005; Birgin, Kutluca and Catlioglu, 2008).

  A study by Isman and Gurgun (2010) similarly notes that there are differences in students' attitudes towards computers and the internet depending on variables such as computer ownership, internet connection ownership and frequency of internet use, and that they have higher attitudes in parallel with the frequency of use.

- Students' levels of positive views about Vitamin are lower and their levels of negative views are higher as their grade levels increase. The students at higher grades experience more anxiety over examinations and dedicate themselves to continuously solving questions, while Vitamin aims to teach course subjects, which may also result in higher levels of negative perceptions towards Vitamin among students. In fact, a study investigating students' attitudes towards information technologies report that in general, students at lower grade levels have more positive attitudes towards information technologies when compared to those at higher grade levels (Isman and Gurgun, 2010).

## SUGGESTIONS

It could be suggested to improve the content of Vitamin education support service by adding the other subjects included in the curricula along with the basic subjects, and to note teacher opinions in improvement efforts. In addition, efforts can be made for teachers to be able to add to the system the learning objects they themselves prepare such as activities, work sheets, exercises and evaluation questions, and animations, so that the content can be improved faster and made more real. Furthermore, technical and economic arrangement can be made for students to easily access to Vitamin in their homes. Organization of the instruments including examples, experiments, activities and questions presented in textbooks in parallel with Vitamin; taking care to use the system during lessons in classrooms as much as possible; and using information technology classrooms for this purpose may help Vitamin be used more effectively and widely. On the other hand, research should be made into the suitability of Vitamin content in terms of education, design and technical purposes, and its contribution to academic achievement.

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