



## The research on application of answers-searching app in middle-school mathematics teaching

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### Abstract

In the information age, the answers-searching App is one of the emerging products which have great influence on students' learning. In recent years, many front-line teachers and college scholars have conducted extensive research on some problems of the Application of answers-searching App from different perspectives in theory and practice, and have obtained many research results. In order to better explore the Application of the answers-searching App in middle-school mathematics teaching, this paper reviews the existing relevant literature from the four aspects of the reasons and methods of using the answers-searching App, the influence of answers-searching App on students and its countermeasures. It is hoped that students can use the answers-searching App correctly in mathematics learning and promote the positive effect of the answers-searching App on mathematics learning.

**Keywords:** answers-searching App, middle school students, mathematics learning, mathematics teaching

### 1. Introduction

The answer-searching App is a kind of application App for students to search for answers to problems. Students can upload the problems to the App in the form of text or pictures through the smart phone and the corresponding answer process can be obtained. The working principle of the answer-searching App is very simple. First use the image decoding technology to decode the title in the photo into text content, and then search for answers to related problems on the Internet or in the software developer's test database. As the answers-searching App plays an increasingly important role in the study of middle-school students, many front-line teachers and college scholars have begun to study the answers-searching App in various aspects. In general, this paper mainly studies the reasons and ways of students using question answers-searching App, the influence of answers-searching App on students and the countermeasures.

### 2. Reasons for middle-school students using answers-searching App

More and more students are beginning to use the answers-searching App. Many scholars believe that on the one hand, there are still many shortcomings in the design of current homework, and on the other hand, students' own needs for mathematics learning. Zhou Changwen, Jiang Zhaohui and Guo Wenzhao believe that the number of subjects studied in secondary schools has increased significantly, and there is a large amount of homework and exercises in each subject and teachers also emphasize the correctness of the answers. The huge work pressure brought about by the homework evaluation system and the excessive assignments tactic has made some students aim to complete the homework quickly and accurately, and began to use the answers-searching App frequently. (Zhou, C. W., 2016; Guo, W. J., 2014; Jiang, Z. H., 2014) <sup>[1-3]</sup>.

Chen Xingyou Pei and Liu Haiyan pointed out that

mathematics learning needs and internal needs are important reasons for generating motivation to use answers-searching App: (1) Interested in mathematics learning. Because of their high enthusiasm for mathematics, such students have a tendency and a high degree of curiosity for mathematics learning. (2) Insufficient experience in individual knowledge in mathematical cognitive structure. The lack of mathematical cognition will lead to some unsolvable math problems. In order to solve the current problems and clear the current obstacles, students will use the answers-searching App to help them solve their doubts quickly and conveniently. (3) With utilitarian purposes. The learning needs that students produce in order to achieve a certain purpose are mainly divided into satisfying their own emotional needs and just for the completion of daily work. (4) Tutoring is not available after class. At present, parents are unable to provide children with learning and counseling. Students can't get timely help in the process of mathematics learning outside the classroom. The emergence of answers-searching App has solved this problem to a large extent, and can provide students with timely daily counseling. (Chen, X. Y. P., 2017; Liu, H. Y., 2018) <sup>[4-5]</sup>

### 3. The way middle-school students use answers-searching App

Each student has different emotional attitudes and cognitive states in mathematics, so they have different goals and needs for mathematics learning, which leads to differences in the way they use the answers-searching App. Liu Haiyan pointed out that there are three main ways for students to use the answers-searching App: first thinking about the search, searching for the answer and thinking about it and just searching for the answer. (Liu, H. Y., 2018) <sup>[5]</sup>

Chen Xingyou Pei has carried out a more detailed analysis of the three methods. He believes that the way students use the answers-searching App is mainly divided into : (1) Provide solutions and ideas for the questions students encounter

through the answers-searching App, and guide yourself to think about learning. This method is the most common. Most students will have a thinking process before using the answers-searching App. When they can't solve it further, they can use the answers-searching App to get the solution. (2) Learning a question through the answers-searching App to extend multiple questions or one-question multiple solutions, diverging and broadening their mathematical thinking, expanding mathematics knowledge, and meeting their higher requirements in mathematics learning. At the same time, use the knowledge point summary module of the answers-searching App to conduct self-examination of mathematics learning. (3) The answers-searching App becomes an "answer book". In order to complete the homework conveniently and easily, the students directly copy the problem-solving process without the process of thinking and learning. Use the search method to copy the App to help complete the mathematics learning tasks. (Chen, X. Y. P., 2017) <sup>[4]</sup>.

#### **4. The impact of answers-searching App on middle school students' learning**

##### **4.1 positive influences**

In the information age, it is widely believed that the existence of answers-searching App has largely played a role in coaching students. Tian Yan, Chen Xingyou Pei and Liu Haiyan think, On the one hand, the huge learning resource database consisting of various question banks, knowledge points library and teaching video library behind the answers-searching App broadens the students' mathematics "vision" and expands the students' problem quantity. Students are not limited to learning the knowledge in books, not limited to the classroom, the study in books and the completion of homework. On the other hand, the answers-searching App creates an online communication platform and plays the role of "electronic tutor", giving students daily counseling and basic help. It is not limited by time and place to solve problems immediately and help students get ideas and methods. (Tian, Y., 2017; Chen, X. Y. P., 2017; Liu, H. Y., 2018) <sup>[4-6]</sup>.

Shen Jiakuan pointed out that in the Internet era, students use the answers-searching App to conduct online homework and practice, so that they can customize the exercises according to their own needs, and at the same time, they can practice at any time and any place. In the practice, the system automatically tracks and records the student's problem, and forms a wrong record and analysis, and can also form a data analysis report. According to the knowledge points and test sites corresponding to the wrong questions, the system pushes the test sites and test questions corresponding to the wrong questions to the students, and the students can consolidate and improve them in time. At present, many of the answers-searching App implements the function of timely answering questions, that is, the students who submit their own questions will get the teacher's explanation, but we need to pay a certain cost. (Shen, J. X., 2017) <sup>[7]</sup>.

##### **4.2 negative impacts**

Although the answers-searching App brings a lot of convenience, the negative impact is also invisible. Liu Haiyan believes that the answers-searching App will distract students

from their learning. Middle school students use other social entertainment Applications while learning with the answers-searching App to rate up to 80.4%. The use of social entertainment App during study will undoubtedly distract students' attention and make students' learning inefficiency, which will lead to the decline of students' ability to solve problems, the decline of grades, and even undermine a student's daily code of conduct. (Liu, H. Y., 2018) <sup>[5]</sup>.

Yan Zhongjun and Hu Qingyun pointed out that the emergence of the answers-searching App led to the distortion of students' work, and the visual performance was that a large number of students had excellent homework performance and poor test scores. Students fail to truly reflect their actual learning ability during the course of completing their homework assignments, which seriously affects students' correct learning cognition, and also affects the accurate assessment of students by educators. (Yan, Z. J, 2017; Hu, Q. Y, 2016) <sup>[8-9]</sup>.

Tian Yan pointed out that most App developers are not educated experts, and some Apps are developed by large Internet companies, such as "homework help" developed by "Baidu know"; Some are developed by online game companies, such as "Ask him homework" developed by children's online game operators. These companies say they value the "online education" student market. In addition, although the answers-searching App provides online teacher services, most of the online teachers are university students, and the correctness of the answers is yet to be reviewed. (Tian, Y., 2017) <sup>[6]</sup>.

Li Yingnan, Wang Shouyu and Hu Ye believe that the drawbacks of the answers-searching App are mainly concentrated in the following points: (1) It is not conducive to students to build a good mathematical cognitive structure. When the answers-searching App is used, the students only pay attention to the solution of the current problem or the Application of a single knowledge point, but cannot effectively summarize and establish the connection between different questions and knowledge points. (2) Making students psychologically dependent reduces the ability of students to think and solve problems independently. When faced with new questions or new knowledge, there is no way to think about it from students own point of view, and students have to use other references to give pointers. (3) As a product of informatization, answers-searching App cannot think independently, and cannot guarantee that the answer is 100% correct. If there is an error, it may also be misleading to students. (4) It has weakened the students' attention to teachers' classroom teaching. Some students will use the answers-searching App to help them prepare for the pre-study. When the teachers are teaching new knowledge, the students who have already studied this part will not be interested, thus reducing their focus and concentration on teacher teaching. (Li, Y. N., 2015; Wang, S. Y., 2008; Hu, Y., 2016) <sup>[10-12]</sup>.

#### **5. How to eliminate the drawbacks of the answers-searching App**

In order to cope with the negative impact of the answers-searching App, many researchers have proposed different measures to improve the positive role of the answers-searching App, to reduce or even eliminate its drawbacks. Luo

Binxin pointed out that the informationization and digitization of teaching resources are the general trend of future teaching activities. Teachers must correctly recognize the importance of new technologies in teaching activities. By coordinating the relationship between the answers-searching App and classroom teaching, students can correctly treat the search questions, use their power to solve problems, cultivate learning ability, and achieve comprehensive development. In addition, students are required to learn to share information resources with students, and to discuss and cooperate on issues on the Internet. (Luo, B. X., 2015) <sup>[13]</sup>.

Zhou Changwen and Yu Yanyan proposed to change the design of the homework and arrange the work reasonably. The teacher should use the idea of awakening and motivating students to learn actively and design the topic reasonably. The amount of design questions must be appropriate, and try to avoid the use of "excessive assignments tactic". This can make students who use the answers-searching App because of the large amount of questions lose this motivation. The design of homework is turned to openness, autonomy, and inquiry, thereby enhancing students' ability to analyze and solve problems, so that students' attention be truly implemented in the educational life experience, return to the true purpose of the homework, and no longer limited to the number of questions and right or wrong. (Zhou, C. W., 2016; Yu, Y. Y., 2017) <sup>[1, 14]</sup>.

Xiong Zuge, Han Yunxia, Fu Qiao and He Yanhong believe that the drawbacks of eliminating the answers-searching App should start from the following aspects: (1) Students correctly understand and use. Middle school students are at an important stage in the development of their lives, and they are an important period for the formation of their correct outlook on life values. Because their understanding of new things is not in place, self-control is not enough, so they can't use such App correctly, and thus plagiarize the answer. Therefore, first of all, students should have a correct understanding of such answers-searching App in their ideological understanding. Let them realize the meaning of learning and the development of imprisonment and bad learning habits caused by the use of such answers-searching App to obtain answers. But at the same time, we must also look at such App correctly. For the knowledge that is not completely digested in the classroom, we use such App to improve ourselves and consolidate knowledge. (2) Parents strengthen supervision and guidance: Parents can not only ask their children to complete homework, but more should evaluate children from the quality of their work. Parents should encourage their children to do their homework rather than finish their homework. They can even try to work together with their children to solve their homework. On the one hand, they will strengthen their study. On the other hand, they will supervise their homework and enhance the process of parenting. (3) Reasonable guidance and testing by teachers. On the one hand, teachers can use the form of class meetings to allow students to debate such issues as "answers-searching App", so that students can recognize the pros and cons in the discussion and enable students to establish a correct and reasonable attitude. On the other hand, teachers should also "prepare homework", make reasonable reforms to their homework, change the way they evaluate

students' work, and pay attention to the process of thinking about children rather than the result, so as to constantly adjust their teaching. (Xiong, Z. G. & Han, Y. X., 2016; Fu, Q., 2016; He, H. Y., 2017) <sup>[15-17]</sup>.

Shen Jiaxuan, Yang Niwa and Hu Ye proposed that the answers-searching App itself should be rectified. To improve the answers-searching App, one is to restrict the use of chat entertainment App when students use the answers-searching App to avoid distractions. The second is to adopt the real-name system to timely feedback the students' search questions to their teachers, so that teachers can timely understand the students' work situation, in order to adjust the teaching progress and methods. The third is to change the form of the answer. It should first present the knowledge points involved in the problem. After turning the page, the problem solving method will be presented. After turning the page again, the problem solving steps and answers will be presented instead of presenting the answer first. For App developers, letting education take the wings of technology can not only rely on formal changes, moving assignments from paper to the Internet. For App developers, letting education take the wings of technology can't just be superficial changes, moving homework answers from paper to online. This is just "changing the soup and not changing the medicine", which still does not help the students fundamentally. In the App development process, more consideration should be given to how to develop students' learning ability. (Shen, J. X., 2017; Hu, Y., 2016; Yang, N. W., 2016) <sup>[7, 12, 18]</sup>.

## 6. Evaluation of existing research

In summary, it can be seen that the current research on answers-searching App mainly focuses on the impact of the answers-searching App on students and how to eliminate the adverse effects. However, current research also has shortcomings. First, the extent to which students use the answers-searching App will have a positive or negative impact on student learning. At present, researchers have studied how students use the answers-searching App, but they have not conducted in-depth analysis of the impacts. The relationship between the methods and the impacts is not much research. The second is to eliminate the drawbacks of the answers-searching App. For the student level, most of the research only shows that the students should correctly guide the knowledge of the answers-searching App, but the specific operational operability guidance is rarely summarized. Third, many front-line teachers usually use survey questionnaires when researching answers-searching App. However, the analysis of data only stays at the percentage analysis, and only a few studies use SPSS for data analysis. The inadequacy of data analysis also makes many potential interrelationships difficult to find.

Therefore, future research needs to conduct more scientific statistical analysis on data, and strengthen the research on the use of answers-searching App and the relevance of results, and give more targeted countermeasures to reduce adverse effects.

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