

## Retraction

# Retracted: Curriculum Design of College Students' English Critical Ability in the Internet Age

### Wireless Communications and Mobile Computing

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external

researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] J. Shen, Y. Chen, and J. Lin, "Curriculum Design of College Students' English Critical Ability in the Internet Age," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 5609450, 7 pages, 2022.

## Research Article

# Curriculum Design of College Students' English Critical Ability in the Internet Age

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“Speculation” is considered to be one of the important qualities that modern students should possess, and it is also the goal of modern education. With the advent of the Internet age, teaching models have been continuously combined with technology. From mixed teaching to flipped classroom, teaching with different methods of information transmission can achieve the best results. This paper is aimed at studying the curriculum design of college students' English critical thinking ability in the Internet era. On the basis of analyzing the significance of cultivating college students' critical thinking ability and the curriculum design of critical thinking ability, the flipped classroom mode is used for teaching practice through the experimental method and questionnaire survey method. The personality tendency and the cultivation of students' critical thinking ability in the flipped classroom were analyzed statistically. Finally, it was concluded that the students' critical thinking skills have been improved to a certain extent through the various links set in the flipped classroom teaching.

## 1. Introduction

In the global economy, the competition for talents is fierce, and exercising the practical ability of applying English can better improve the international competitiveness of our talents. Due to the long-term test-oriented education, college students lack the ability to think critically and creatively in English, and the content is monotonous. Therefore, how to effectively cultivate college students' English critical thinking ability is extremely important [1, 2].

More and more experts and scholars are interested in the research of speculative ability. Quattrucci introduced a new method of teaching advanced laboratories at the undergraduate level. The purpose of this method is to allow students to participate more in laboratory experience and apply speculative skills to solve problems [3]; Matos et al. stated that speculative skill education has always been a growing concern in the context of Portuguese higher education. The field is designed to meet the demands of the labor market and the most demanding and complex social challenges. However,

there is a lack of systematic literature review studies to describe teachers' use of different speculative education practices [4]; Ulger proposes that problem-based learning methods are implemented. A one-semester treatment method for higher education visual arts students was proposed. One examines its influence on the creative thinking and critical thinking tendency of these students. The problematic learning method has a significant influence on creative thinking, but has little influence on critical thinking tendency [5]; Colln-Appling and Giuliano said that the ability to succeed in speculative skills has a significant impact on the decision-making process. Critical ability is a concept that is difficult to embed in nursing courses, and it needs continuous practice to improve professional ability and improve professional future ability [6]. The research on the problem of English critical thinking at home and abroad is still in its infancy. In the teaching of English as a subject, articles on how to cultivate students' critical thinking ability, improve the effectiveness of English teaching, and promote students' long-term development are still relatively few.

Therefore, this paper intends to study this topic in depth, hoping to give scientific guidance to the future teaching practice.

Compared with foreign researchers, this paper mainly analyzes and practices the significance of cultivating college students' critical thinking ability and the course design of critical thinking ability. The flipped classroom model is used for teaching practice, and the students' thinking personality tendency and the cultivation of students' critical thinking ability in flipped classroom are carried out. Through statistical analysis, it is concluded that students' critical thinking skills have been improved to a certain extent through the various links set up in the flipped classroom teaching.

## 2. Curriculum Design of College Students' English Critical Ability in the Internet Age

### 2.1. The Significance of Cultivating College Students' Thinking Ability

*2.1.1. Help Stimulate Students' Interest in Learning.* English teachers cultivate students' thinking skills in the classroom, so that all students can fully integrate into the classroom and actively participate in classroom activities, so that students have a strong interest in English courses. The most taboo in English teaching is that teachers blindly explain and preach. In order to make the classroom full of vitality and make students feel happy, English teachers need to constantly inspire and motivate students in the classroom, stimulate students' interest in learning, use speculative teaching methods to activate the original boring English, analyze the meaning of things, and look at things dialectically [7, 8].

*2.1.2. Help Students Consolidate Their Internalized English Subject Knowledge.* English teachers cultivate students' thinking skills in English classes, help students consolidate their knowledge of ideological and political issues, and actively establish a knowledge system. On the basis of thinking and analysis, he constantly processes and processes the knowledge he has learned and constantly internalizes him to form his own independent and stable cognitive structure and way of thinking. Teachers do not need unnecessary guidance. The teaching content in students' hearts has been internalized and externalized into action, and students' thinking ability has also been improved [9, 10].

*2.1.3. Help Students Develop the Spirit of Questioning and Innovation.* Teachers should guide and cultivate students' logical thinking ability in English class, let our students participate personally, and make our students truly become the main body in the classroom based on students' practice. This is conducive to the performance and display of the students' personality and give play to their strengths. Teachers must first focus on stimulating and guiding students to think independently and provide some incentives for their students' logical thinking and put forward their own views, and cultivating students' logical thinking ability is conducive to promoting the democratic equality between students and

teachers, promoting students' sense of innovation, and enhancing students' challenge spirit [11, 12].

### 2.2. Curriculum Design for Cultivating Thinking Ability

#### 2.2.1. Preclass Learning Task Design

*(1) Task List for Self-Study before Class.* The preview before the flipped classroom is a task assigned by the teacher, such as completing exercises related to the content of the video resource. However, students may not be able to complete the exercise correctly after watching the microclass video. This is okay, because the purpose of this exercise is to tell the teacher that the student has a problem, just like giving the student a pulse. The homework completed by the students must be handed over to the teacher before the class, which can be achieved with the help of an information technology platform. As an expert in a certain field, teachers may have forgotten the difficulties that beginners face when they are exposed to new knowledge, so the task before flipping the classroom is to help teachers understand the problems of students.

*(2) Students Study Independently before Class, and Teachers Collect Feedback on Questions.* After students receive the preclass self-study materials and self-study homework list, follow the instructions in the preclass self-study homework list to watch the instructional video and complete the homework on the self-study homework list. Teachers can track and guide students' autonomous learning through the network platform and understand the problems students face when participating in classroom learning. The teacher collects the tasks completed by the students and the related exercises of the self-study task list, summarizes the problems faced by the students and the suggestions made by the students, and prepares for the next step of classroom teaching.

*2.2.2. Organization of Teaching Activities in Class.* In this paper, the teaching activities in the flipped classroom are designed as the following links, and the process is shown in Figure 1.

*(1) Warm-Up before Class.* The warm-up activities before class enable students to prepare themselves and learn some new knowledge well and to participate in the following learning activities wholeheartedly, attracting the interest and attention of the majority of students. Teachers can fully attract the interest and attention of teachers and students by quoting content and methods that are closely related to the content of the course teaching, mobilize their interest and curiosity, and promote the initiative and enthusiasm of teachers and students to participate in classroom activities. At the same time, in the warm-up and exploration part of the preclass content in this flipped classroom, teachers can guide students to carefully review all self-study content before class through oral questions and form a feedback for students through reflection and feedback to prepare for occasional problems.

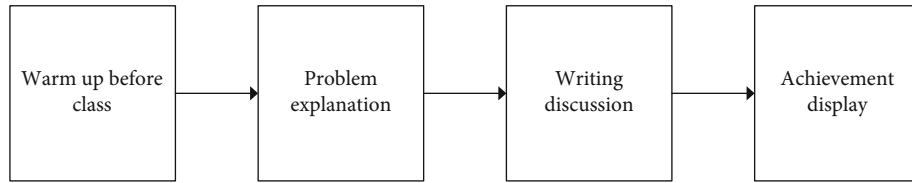


FIGURE 1: Flipped classroom activity flow chart.

TABLE 1: Pretest analysis of the status quo of students' speculative personality tendency.

	Minimum	Maximum	Average per question	Standard deviation
Analytical	18.00	29.00	4.924	3.132
Curiosity	22.00	33.00	5.044	3.856
Toughness	14.00	26.00	4.237	3.275
Confidence	22.00	30.00	4.058	2.702
Truth-seeking	12.00	34.00	3.069	6.301
Maturity	13.00	30.00	3.034	4.237
Openness	14.00	26.00	3.316	4.297
Sense of justice	14.00	29.00	3.797	4.567

TABLE 2: Posttest analysis of the status quo of students' speculative personality tendency.

	Minimum	Maximum	Average per question	Standard deviation
Analytical	14.00	29.00	4.991	4.283
Curiosity	19.00	35.00	5.052	4.723
Toughness	12.00	26.00	4.247	3.338
Confidence	15.00	34.00	4.133	5.078
Truth-seeking	14.00	28.00	3.205	3.666
Maturity	17.00	35.00	3.170	4.708
Openness	14.00	35.00	3.401	4.286
Sense of justice	14.00	28.00	3.942	3.281

(2) *Problem Explanation.* When a student starts self-study before class, due to the differences in the knowledge structure and the level of their cognitive abilities between different students, the different knowledge of the students may also be different, which leads to some cognitive errors and imbalances between them. In the flipped education classroom of this article, students can be the main participants in classroom teaching and activities. The teacher will use our students in the whole process of self-observation and the difficult points collected in the classroom study as cases to illustrate. These cases are encountered by all students in the process of self-study. The students are quite aware of the content and have strong personal emotions. Through discussion with teachers, students can gradually form new knowledge in the constant unbalance of understanding and realize the understanding and internalization of knowledge.

(3) *Collaborative Discussion.* Once students solve the existing problems, they can deepen their knowledge through communication and mutual assistance between students, thus forming their own cognitive structure and knowledge system. According to the traditional teaching model, students complete their homework independently after class and cannot communicate with peers and get help in a timely manner when encountering difficulties. At this point, they will realize that they cannot complete the task entirely on their own, so their confidence in learning will be affected. The teaching activities in the flipped classroom of this article will create a bond of help and mutual assistance for students and enhance students' confidence in completing learning tasks through peer communication and collaboration.

(4) *Display of Results.* After cooperation and mutual assistance, teachers guide students to share and evaluate the results of their study or group. Students summarize the results of individuals and groups, select group representatives to show their learning results, and can also ask questions worthy of in-depth discussion. Through in-depth discussion of the problems, the in-depth understanding and absorption of knowledge can be further promoted. At the same time, through the exchange of results between groups to further promote exchanges between students and through mutual evaluation between groups to enhance the recognition of group results, students can experience the satisfaction and sense of completion of learning in shared sharing.

### 3. Experiment

3.1. *Survey Method.* This article selects a class of non-English majors in a university as the research object, a total of 50 people, including 9 boys and 41 girls. This class serves as both the experimental group and the control group. The selected experimental mode is the single-factor single-group pretest and posttest experimental mode. This article conducts experiments in a real environment to explore whether the flipped classroom model can cultivate students' thinking ability. Before the experiment, this article will use the questionnaire survey method to grasp the students' attitudes towards college English courses and the understanding of the flipped classroom teaching mode, which will be used as the basis for observing the changes in students' thinking ability after the flipped classroom teaching is implemented. After the experiment, a questionnaire was designed for different links in the teaching practice to analyze the changes in students' thinking ability before and after the teaching experiment.

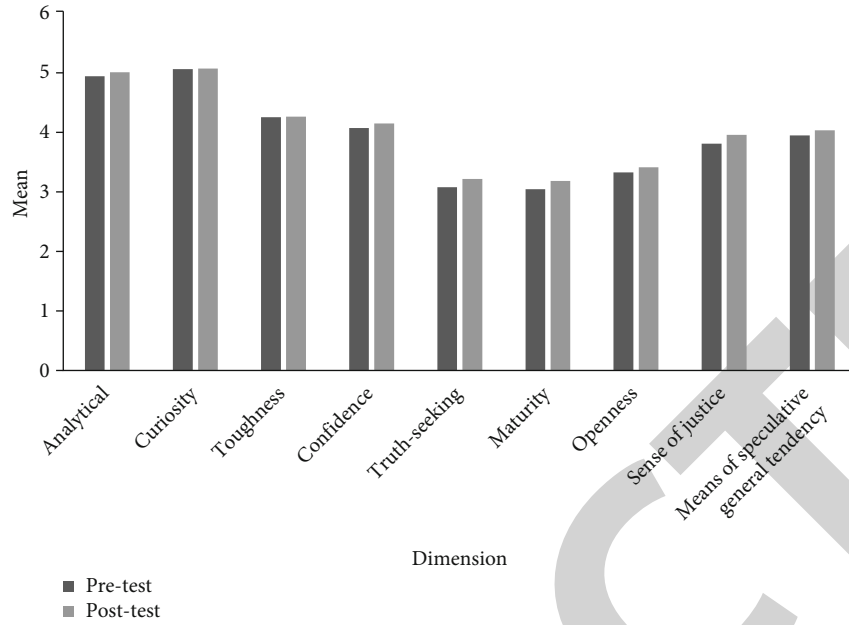


FIGURE 2: Changes in the dimensions of speculative personality tendency and total speculative ability.

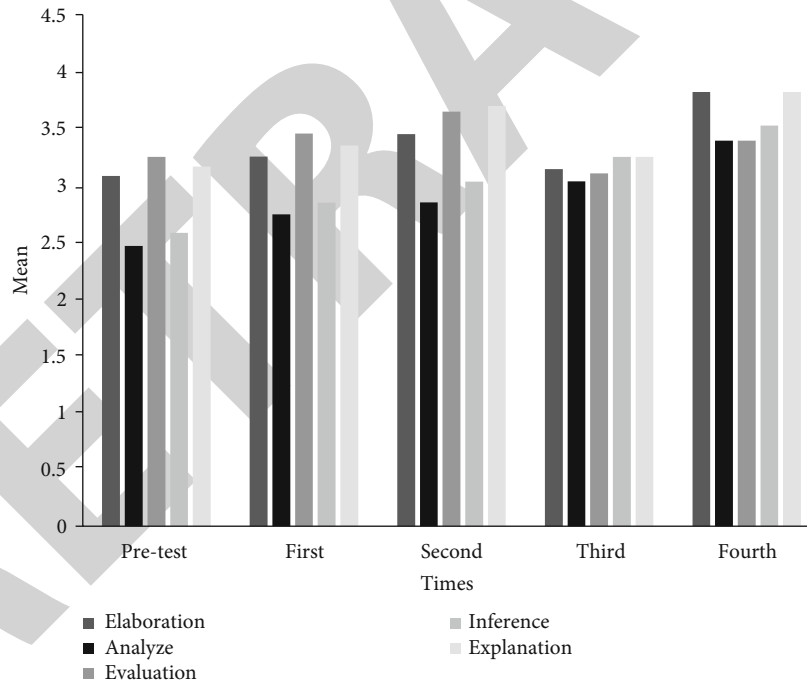


FIGURE 3: Analysis of the overall level of students' thinking ability.

3.2. *Questionnaire Reliability Test.* In order to test the reliability and stability of the questionnaire, the variance of the questionnaire results was first calculated, and then the reliability of the returned questionnaire was tested by the method of “half-half reliability”. Using formula (1) to calculate the reliability coefficient, the correlation coefficient of the questionnaire is  $r = 0.883$ . According to the theories and methods of modern scientific research, when the reli-

ability of a test reaches 0.80 or more, it can be regarded as a test with higher reliability. The test results confirm that the questionnaire is reliable.

$$S^2 = \frac{(M - X_1)^2 + (M - X_2)^2 + (M - X_3)^2 + \dots + (M - X_n)^2}{n}, \tag{1}$$

TABLE 3: Analysis of the overall level of students' thinking ability.

	Elaboration	Analyze	Evaluation	Inference	Explanation	Total value of thinking ability
Pretest	3.082	2.466	3.249	2.582	3.166	14.55
First	3.253	2.744	3.455	2.846	3.349	15.65
Second	3.449	2.849	3.649	3.033	3.699	16.68
Third	3.142	3.034	3.106	3.249	3.249	15.78
Fourth	3.820	3.392	3.392	3.525	3.820	17.95
Overall	3.349	2.897	3.370	3.047	3.457	16.12

$$r = 1 - S^2 \frac{(1 - r_1)}{S_n^2}, \quad (2)$$

$$r = \frac{2r_{\text{ban}}}{1 + r_{\text{ban}}}. \quad (3)$$

## 4. Discussion

*4.1. Analysis of the Status Quo of College Students' Speculative Personality Tendency.* Table 1 shows that the total value of students' speculative personality tendencies is  $3.935 < 4$ , so students have negative speculative personality tendencies. However, the analysis, curiosity, tenacity, and self-confidence of these eight dimensions have an average value of  $>4$  for each question, which means that these four dimensions have a positive thinking personality tendency. Among them, the subjects' curiosity score was 5.044, which was higher than the other several dimensions. Analytical is second, with an average value of 4.925. It can also be seen from this data that students' truth-seeking and cognitive maturity are relatively low, with the average values being 3.069 and 3.034, respectively.

It can be seen from Table 2 that the total value of students' speculative personality tendencies is  $4.018 > 4$ , so students have positive speculative personality tendencies. And the average value of each question of analytical, curiosity, tenacity, and self-confidence in these eight dimensions is  $>4$ , which means that these four dimensions also have a positive thinking personality tendency. Among them, the average score of subjects' curiosity was 5.052, which was higher than the other several dimensions. Analytical is second, with an average value of 4.99. It can also be seen from these data that students' truth-seeking and cognitive maturity are relatively low, with the average values being 3.205 and 3.170, respectively.

As can be seen from Figure 2, it can be seen from the comparison of the pre- and posttest that the posttest values of the eight dimensions are all larger than the pretest values, and compared with the pretest values, the posttest mean of the total speculative tendency is also improved. Among these eight dimensions, students have the highest mean values of curiosity and self-confidence, while the mean values of students' authenticity and maturity are relatively low. The other dimensions are not much different.

*4.2. The Overall Situation and Trend Changes of College Students' Thinking Ability.* In order to test whether the flipped classroom can cultivate students' thinking ability,

TABLE 4: Average statistics of self-regulation and affective traits.

Times mean	Self-regulation pretest	Self-regulation posttest	Pretest of emotional traits	Emotional traits posttest
First test	2.852	3.274	2.592	3.232
Second test	3.027	3.899	2.677	3.601
Third test	3.299	3.943	2.916	3.619
Fourth test	3.370	4.000	3.250	3.681

this article presents the average of the total scores of the thinking ability and the scores of various subskills in the four English tests.

According to the scoring standard, the full score of speculative skills is 25 points, and the maximum score of each subskill is 5 points. In order to observe the changes of each speculative subskill and the total value of speculative skills in the 4 tests, Figure 3 can be used to judge.

From Table 3 and Figure 3, it can be seen that in the first two tests, students' thinking skills increased from  $\bar{15.65}$  to  $\bar{16.68}$  and the average score of interpretation and evaluation skills was the highest, but the average score of students' analytical skills was the lowest. In the third test, some subskills of students showed a downward trend, especially in evaluation and interpretation. However, in the fourth test, the average value of the students' speculative subskills increased from 15.78 to 17.95.

*4.3. The Changing Trend of College Students' Self-Regulation and Emotional Traits.* In this article, in addition to the analysis of the overall situation of speculative skills and various subskills, the trend of self-regulation and students' emotional characteristics is also studied, and it is hoped that through their changes, we can judge whether process-flipping classroom teaching can improve students' performance. Table 4 uses data to study the changes in the self-regulation and emotional characteristics of students' writing.

In order to observe the changes of self-regulation and emotional characteristics in the four English tests more intuitively, Figure 4 can be used to judge.

Table 4 and Figure 4 show that in the first test, the students' self-regulation and emotional traits were 2.852 and 2.592 in the pretest, and the posttest averages were 3.274

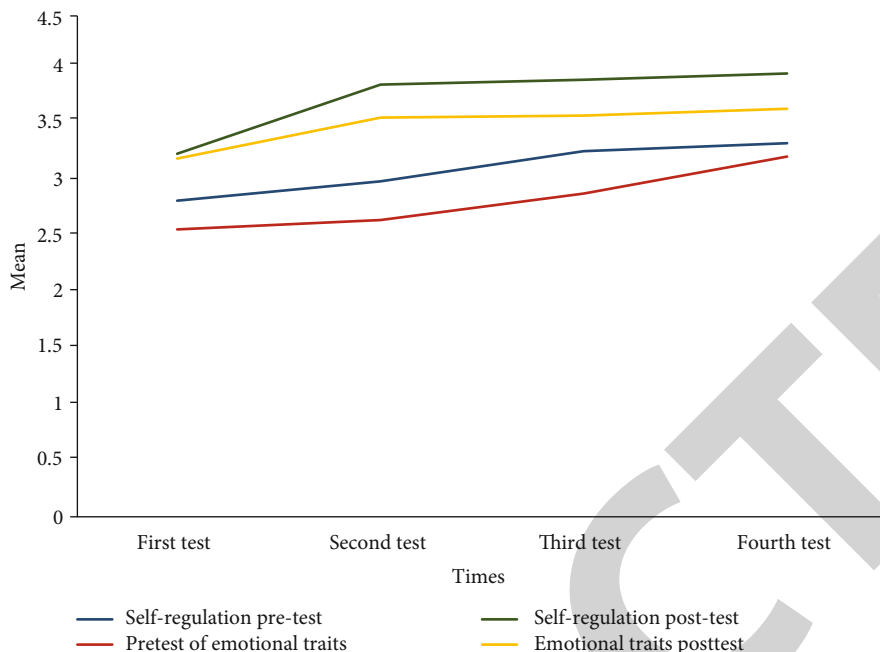


FIGURE 4: Average statistics of self-regulation and affective traits.

TABLE 5: The limitations of the existing works.

Serial number	Limitation
1	The number of the students being tested in the research is relatively small
2	The development of students' critical thinking ability is only carried out in college English classrooms as a different classroom activity, and this classroom activity only takes up a small part of each class

and 3.232; in the second test, the pretest averages of students' self-regulation and emotional traits were 3.027 and 2.677, and the posttest averages were 3.899 and 3.601; in the third test, the pretest averages of students' self-regulation and emotional traits were 3.299 and 2.916, and the posttest averages were 3.943 and 3.619; in the fourth test, the pretest averages of students' self-regulation and emotional traits were 3.370 and 3.250, and the posttest averages were 4.000 and 3.681. The four sets of data clearly show that the average of self-regulation and emotional traits has improved in the four tests and the average of the posttest is greater than the average of the pretest.

## 5. Conclusions

Today, the Internet has completely penetrated into our daily lives. The "Internet+" teaching strategy covers the shortcomings of traditional teaching, enriches teaching methods, expands teaching content, optimizes teaching evaluation, and more effectively carries out student education. Aiming at the difficulties and doubts of traditional classrooms, flipped classrooms are used to fully build students' learning, analysis, and evaluation abilities; guide students to learn and explore independently; and cultivate high-level thinking skills.

## 6. Limitation and Suggestions for the Further Research

**6.1. Limitation.** In this paper, there are still some limitations in the research on the subject of English critical thinking ability course design for college students in the Internet era. The specific performance is shown in Table 5.

**6.2. Suggestions.** The above limitations should be avoided in future research, and it should also be noted that despite such limited time, students' critical thinking is still greatly improved. Therefore, if the training time is prolonged, the students' critical thinking deficit will be greatly improved.

### Data Availability

The data underlying the results presented in the study are available within the manuscript.

### Disclosure

We confirm that the content of the manuscript has not been published or submitted for publication elsewhere.

## Conflicts of Interest

There is no potential conflict of interest in our paper, and all authors have seen the manuscript and approved to submit to your journal.

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