

## Research on the Activation Path of Offline Flip-mix First-class Undergraduate Courses

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### Abstract

From the perspective of "Internet+education", this paper constructs the activation path of offline flip-mix first-class undergraduate courses, and conducts empirical measurement research on the improvement of learning achievement quality by using five dimensions, such as cognitive presence, learning participation, self-efficacy, group strength and teacher-student interaction, and obtains the activation path of offline-flip-mix+offline-experience-mix+progressive -multi-evaluation, which is beneficial to solve the "embarrassment of losing interest in the middle of vivid teaching". Taking all students as the center, students can generate knowledge and skills in accepting participation, generate values and ideas in experiencing participation, and return to the original care of knowledge and education.

### Keywords

Flip the classroom; Mixed teaching; Experiential teaching; First-class course.

### 1. Introduction

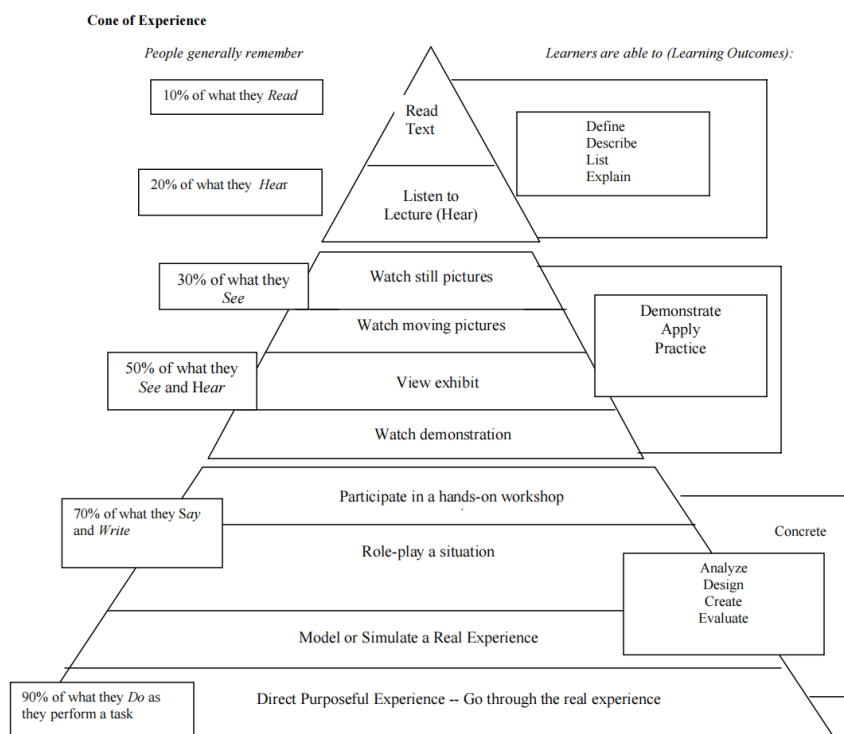
The popularity of 5G technology has inserted the wings of mobile internet into hybrid teaching, and the epidemic situation at home has provided a hotbed for the acceptance and growth of flip classroom between teachers and students. In the post-epidemic period, in the face of traditional education, turning over and mixing seems to be shelved. Only returning to the original care of knowledge and education is the best way out.

Face-to-face classroom teaching with teacher's explanation as the main part can arouse students' interest in 1-2 classes, but can't guarantee their interest in 18 weeks, can arouse the interest of 1/3 students, but can't guarantee the participation of all students. Mobile Internet has already made the undergraduate students familiar with the stream of words, pictures, music and videos overwhelmingly every day.

The classroom that still uses "PPT+ audio and video+teacher's explanation" must only keep the students' short-term enthusiasm and interest burning out of respect for knowledge and teachers. How to make students deeply integrate into the course study for a long time is a problem that every university teacher wants to solve.

Naturally, this needs a complete set of ecological solutions based on the 18-week teaching arrangement, the core of which is students' participation, so as to make them understanding through achieving their eyes, ears, brains, even hearts.

According to "Dale's Cone of Experience"(Heidi, 2020; Dale, 1969) in Figure 1, when teachers use "animation+video+lecture" to carry out teaching, the retention rate of students' memories of what they have heard and seen is as high as 50%, which can be said to be a model of outstanding teachers at present, although the preparation of animation+video+lecture notes is time-consuming and labor-intensive.



**Figure 1. Dale's Cone of Experience**

It is true that every teacher hopes that such vivid teaching can keep all the students interested in 90 minutes of study. However, the teacher's inner pursuit often encounters the embarrassment of losing interest in the middle. The reason is very simple. It's like a 90-minute film production that continues to attract audiences without urine point, except that the teacher doesn't have the sound, light and electricity resources for film production, and the whole production team only has the teacher.

Obviously, in today's era surrounded by sound, electricity, audio and video bombing, classroom embarrassment based on vivid teaching is inevitable and unavoidable. Moreover, during the 18-week teaching period, it is common that students will lose interest collectively. It is another embarrassment of the vivid teaching, which is in line with the principle of "inverted U-shaped attention curve" (Palladino, 2009), so it is inevitable.

However, after a few weeks, the students' attention will be restored, and the embarrassment of losing interest in the middle of the class seems to be accidental, so it can be ignored. not to mention that in any case, some students will participate in learning with full interest in each class. Therefore, these embarrassments of losing interest in the middle of the journey seem to be accidental and need not be putting in mind.

However, if the assumption of classroom teaching effect is that all students can learn, or the memory retention rate of all students can reach 50%, we need to first admit the existence of "the embarrassment of losing interest in the middle of vivid teaching", because this embarrassment is inevitable from the perspective of "Dale's Cone of Experience" and "inverted U-shaped attention curve".

In this way, naturally, the solution is ready to come out: in the 90-minute classroom teaching, teachers' vivid lectures and wonderful comments are indispensable but not the whole. Therefore, what is an effective arrangement of in-class teaching? How will the 18-week teaching be arranged? All of these depends on professional characteristics, curriculum characteristics and teaching purposes.

Based on the guiding ideology of "making the course better, teachers stronger, students busy, management stricter and results more effective" (Ministry, 2019), this paper determines the teaching purpose of taking all students as the center, and uses offline flip mixed teaching method and experiential teaching method to construct the first-class undergraduate course teaching scheme and find out the activation path of course teaching.

## **2. Tracing Back to the Theory of Curriculum Activation Path**

### **2.1. Flipped Classroom**

Lu Xiao et al. (2016), after field research, combined with mastering the learning theory and the principle of difference, analyzed that the flip classroom, which is different from the traditional classroom, should have the following five learning concepts: limited flipped to unlimited to focus on the entirety of the learning subject, presupposition flipped to innovation to focus on the generation of learning content, passive flipped to initiative to focus on the self-motivation of learning, individual flipped to team-work to focus on The self-organization of cooperative learning, results flipped to courses to focus on the multi-evaluation of learning. And he pointed out that "the fundamental goal of flipping the class should be to realize the original care of knowledge in the process of learning".

### **2.2. Mixed Teaching**

Meng Junzhen (2020) summed up from teaching practice that "mixed teaching method is an online+offline teaching method that combines the advantages of online teaching and traditional teaching. Through the organic combination of the two teaching organizations, learners' learning can be led from shallow to deep learning. "

Feng Xiaoying et al. (2018) clarified that the new connotation of mixed teaching under the background of "Internet+education" has gradually evolved from "the mixture of online teaching and face-to-face teaching" to "a teaching situation based on the combination of mobile communication devices, network learning environment and classroom discussion", "creating a truly highly participatory and personalized learning experience for students".

### **2.3. Experiential Teaching Method**

Zhang Jinhua et al. (2010) explained from the aspects of origin, development and concept that the connotation of experiential teaching method lies in students' perception, understanding and verification of knowledge and theory through activities, which can stimulate students to study deeply and even create development.

Shen Jian (2001) put forward that "the all-round and harmonious development of human beings is, first of all, a kind of perceptual and experiential enrichment and development".

To sum up, the two dimensions of student participation-acceptance participation+experience participation-are accompanied and supported by each other. Generate knowledge and skills in accepting participation, and generate values and ideas in experiencing participation. Under the background of "Internet+Education", the organic integration of online and offline learning and in-class and out-of-class learning maximizes acceptance and participation. Experiential teaching method makes the education deviation brought by technology back to the all-round and harmonious development of people. 5G mobile internet technology puts wings on the flip classroom. Whether it's real-time multi-evaluation, self-motivation or self-organized learning, it makes consciousness construction within reach, and content generation, understanding and creation are always online.

### 3. Construction of Offline Flip-Mix Teaching Mode

#### 3.1. Construction of Offline Flip-Mix Teaching Mode Based on MOOC: Activation and Extension

Offline flip-mix teaching mode is an organic integration of offline classroom and online classroom, that is, online classroom exercises and discussions activate offline classroom, extend after-school learning, and realize "limited" to "unlimited" learning subject wholeness, "passive" to "active" learning autonomy.

##### 3.1.1. Application of Online Classroom Exercise Bank

After an offline classroom teacher explains one or several knowledge points with the help of teaching materials +PPT courseware+audio and video, students can turn to online classroom exercises. From the seamless and coherent learning and thinking process of listening, doing exercises, understanding and analyzing answers, students have realized the complete construction of knowledge and theory in their brains, that is, "knowing".

##### 3.1.2. Application of Online Classroom Discussion Bank

After "knowing", to realize "the generation flip" of the learning content by online classroom exercises, "understanding" and "applying", to realize "the generation flip" of the learning content, can be achieved by the online classroom discussion function.

When designing discussion topics, teachers can learn from the five links of anchored instruction of constructivism (see Figure 2), and throw out the anchor of the problem on the basis of providing text, pictures, audio and video and other materials, centering on the basic knowledge theory and combining with relevant examples. Later, because of the self-motivation and self-organization of classroom learning, students will automatically carry out "autonomous learning+collaborative learning".

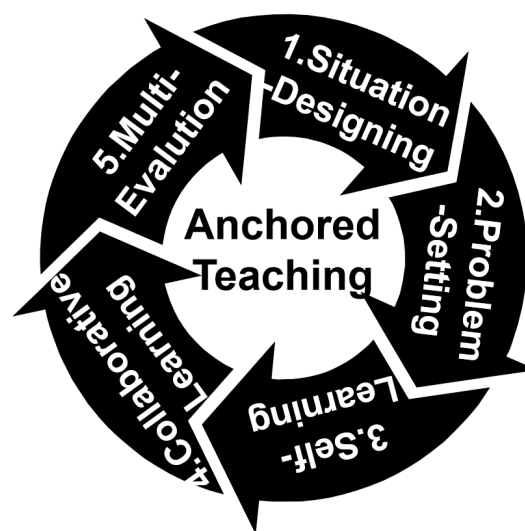


Figure 2. Five links of anchored teaching

#### 3.2. Construction of Profesive Multi-Evaluation System: Generation and Diversification

After the students release the answer to the "anchor of the problem" in the online classroom discussion area, it is essential to carry out "progressive multi-evaluation" in order to realize the "knowing, understanding and applying" of the learning content.

On the one hand, the "progressive multi-evaluation" is based on affirming the content that students have completed, and puts forward the direction of further promotion. The evaluation

is carried out every week and runs through 18 teaching weeks. The final exam is only one part of the evaluation.

On the other hand, the "progressive multi-evaluation" is the evaluation of students, which is called "the evaluation of differences within individuals". From the beginning of class, students get professional evaluation from teachers, so as to cultivate students' disciplinary thinking, innovative thinking, problem-solving ability and writing ability. Teachers' evaluation often combines theoretical knowledge+case analysis+reference answers+other students' excellent answers. By comparing these four dimensions with students' own answers, the evaluation of affirmation+encouragement+promotion direction is given. Students not only learn the subject knowledge content vertically, but also learn the application method of knowledge content horizontally from the excellent answers among classmates, so as to achieve the "knowing, understanding and applying" of learning content, the "generation flip".

To sum up, the offline flip-mix teaching mode combines the vivid explanation of offline classroom teachers with the instant answer analysis and opinion release of online classroom. The progressive multi-evaluation makes knowledge, values and ideas flip repeatedly among materials, students and teachers, which makes the scientific research go deep into the heart.

#### **4. Experiential Teaching Provides A Useful Supplement for Offline Flip Mixing**

The lower part of Figure 1 "Dell's Cone of Experience" includes "Participate in a hands-on workshop, role-play a situation, Model or Simulate a Real Experience, Direct Purposeful Experience". These teaching modes have been repeatedly used in traditional classroom, and the effect is quite good. Naturally, they are a useful supplement to the offline flip-mix.

For example, in the course *Introduction to Management*, in the early stage of 18-week teaching, students have opened up management thinking and constructed management ideas through offline flip-mix. At this time, if the writing of the action plan is carried out, it will not only follow the course, but also generate values and ideas in the experience participation. If open cases related to action plan writing are used to allow students to perform role-playing and evaluation in class, the interest of all students will be ignited in the experience participation, and the feasibility demonstration of action plan will be promoted. The fire will lead students to embark on the learning journey of the following teaching week.

#### **5. The Activation Path of Offline Flip-mix First-class Undergraduate Courses**

Figure. 3 is a spiral perspective view of the student-centered curriculum activation path.

Content essentials +animation: entering into the ear, the eye, reduce the number of students with learning difficulties; online classroom exercises: entering into the brain, all students learn knowledge for themselves; online classroom discussion: getting into the brain, break the speech barrier, improve reading volume and carry out thinking training.

Progressive multi-evaluation: entering into the brain, teacher comment+student review, content+expression; Integration of experiential teaching methods: get into the heart, solve the embarrassment of losing interest in the middle of teaching, and realize the all-round and harmonious development of people.

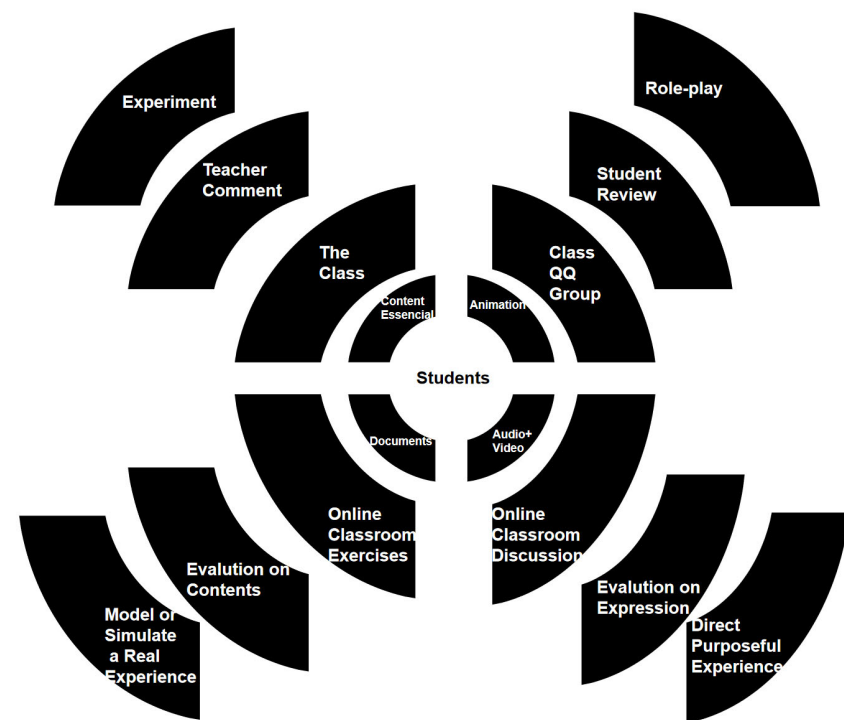


Figure 3. Course activation path

## 6. Five-dimensional Empirical Measurement and Analysis of Activation Path

Scholars at home and abroad put forward the following dimensions for the research on the validity of mixed teaching model.

Akyol et al. (2011)' s investigation on mixed teaching environment shows that mixed teaching can enable students to achieve a high level of cognitive presence and learning results. In an inquiry community, cognitive presence is related to perception and actual learning outcomes. It is suggested that future research efforts should focus on quantitative measurement to establish the relationship between cognitive presence and the quality of learning outcomes.

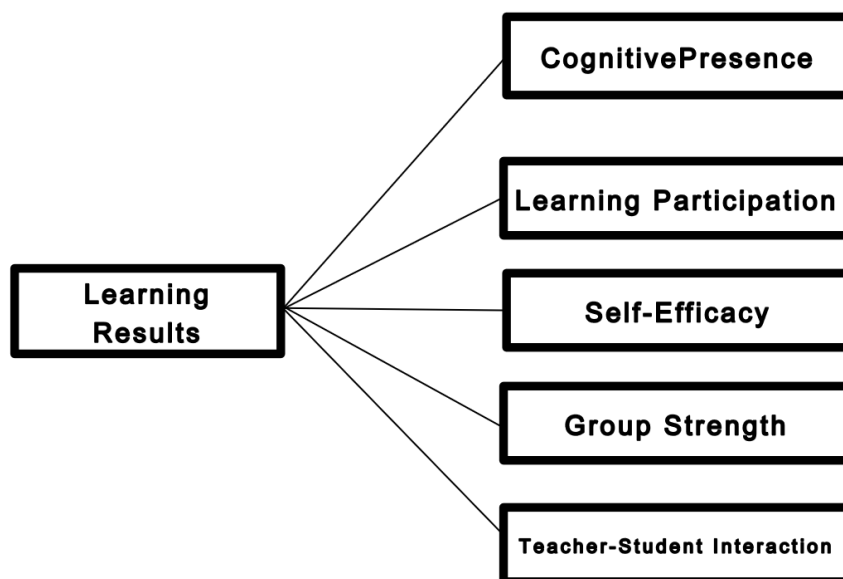
Shen et al. (2011) through the comparative study of the learning results between the control class and the traditional class, showed that the mixed teaching greatly enhanced the effectiveness of participation in learning.

The case study of López-Pérez et al. (2011) shows that mixed teaching enhances students' perceived self-efficacy. The quantitative research of Lee et al (2011) shows that self-efficacy is the pre-factor of online learning acceptance, and it has a positive impact on learning acceptance and satisfaction.

Shen Jian (2001) put forward that "students' participation in educational activities is carried out in two dimensions: acceptance participation and experience participation. The former is the truth-seeking activity of the receiver, pointing to the level of logical cognition, aiming at generating people's knowledge, technology and practicality; The latter is an art-oriented activity of the experience subject, which points to the level of emotion and attitude, and takes the generation of people's moral personality as the value destination ".

This paper uses five dimensions, such as cognitive presence, learning participation, self-efficacy, group strength and teacher-student interaction, to carry out empirical measurement and analysis on the improvement of learning achievement quality. (Figure 4)





**Figure 4.** Empirical measurement of five dimensions

### **6.1. Cognitive Presence Measurement**

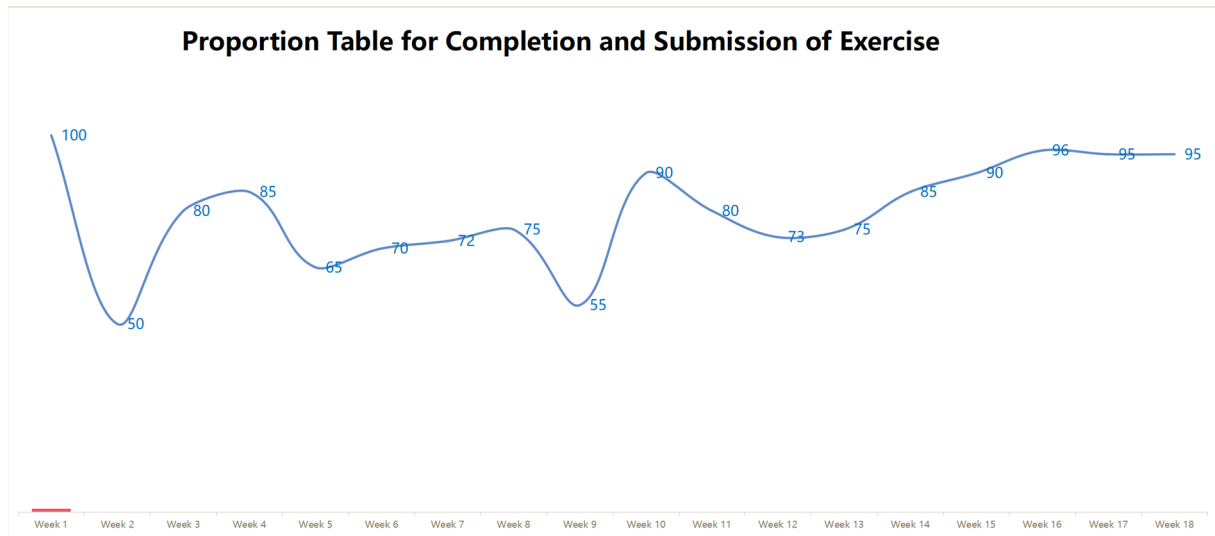
Use IBE-TRADE or SIM-TRADE software to assist the learning of International Trade Practice, so that students can use the international business simulation platform on the basis of learning Chinese and English theoretical knowledge, and truly carry out simulation exercises such as making bills, delivery and collection of import and export goods trade. On the basis of the real exercise, students will review the theoretical knowledge and carry out case analysis, so that the theory and practice can blend with each other and achieve the sublimation regeneration of the knowledge system.

The interview survey of graduates engaged in related work shows that the learning results of this course can promote the work by 100%, and the cognitive presence of simulation exercises with IBE-TRADE or SIM-TRADE software can reach 50%-80%.

Thus, on the one hand, compared with traditional classroom teaching, the cognitive presence of mixed teaching can reach 100%. On the other hand, compared with the real work scene, the cognitive presence of simulation exercises is 50%-80%. This is the direction in which the mixed teaching mode featuring simulation exercises can improve the quality.

### **6.2. Learning Participation Measurement**

In the undergraduate teaching of College English 4, 30 teachers used the online classroom to analyze the submission of exercises assigned by 4,000 students in 18 weeks. The results show that the class submission rate fluctuates between 50% and 100% (Figure 5).



**Figure 5.** Proportion Table for Completion and Submission of Exercise

The fact that the participation of online classroom exercises is uneven can not be ignored. In the mixed teaching practice of undergraduate public courses, the driving force of goal-task orientation should be added in order to improve the quality of learning participation.

### 6.3. Self-efficacy Measurement

If self-efficacy is defined as an individual's self-judgment of the ability to take actions to achieve the goal, self-efficacy can be understood as the key mechanism of interaction between internal forces and external stimuli that affect human behavior. Individuals with a strong sense of self-efficacy tend to actively make enough efforts to produce successful results, while individuals with a low sense of self-efficacy are likely to stop their efforts prematurely, leading to task failure.

The qualitative analysis of self-efficacy dimension of 200 undergraduate students' participation in online classroom discussion of Innovation Management course in 18 weeks shows that the top academic students have a high overall self-efficacy and the completion of 18 discussions has remained at a good level. Among the students with learning difficulties surveyed, 67% have high self-efficacy and 33% have low self-efficacy. The completion of students with learning difficulties is basically average or incomplete.

### 6.4. Group Strength Measurement

The measurement of self-efficacy on learning achievement shows that the difference between classroom discussion and traditional discussion or open homework lies only in the function of automatic publication+publicity brought by technological progress, and the validity of using group strength to activate individual strength is limited.

Therefore, experiential learning+process multiple evaluation is an indispensable factor to activate the first-class undergraduate class. Stimulating the group strength of each member in the class is the fundamental force to improve the quality of learning outcomes. Technology provides real-time recording support for the excitation process.

### 6.5. Teacher-student Interaction Measurement

Vivid explanation is the embodiment of leadership tasks in the process of teaching management, and wonderful comments+real-time encouragement is the crowning touch to effectively control the whole teaching process.

In the measurement of self-efficacy, it is found that classroom discussion without process multi-evaluation is inefficient for all students to improve their learning outcomes, which is no



different from the effect of using video programs to coax children. The benign integration of students' participation and teachers' guiding interaction and the promotion of self-organized cooperation among students are the origin of returning to "successful education": education enables students to realize the healthy development of self-affirmation, self-appreciation and self-creation through self-judgment, self-internalization and self-choice.

## 7. Conclusion

Five-dimensional empirical measurement research on the improvement of learning achievement quality shows that the activation path of first-class undergraduate courses with offline flip mixing+offline experience mixing+progressive multi-evaluation is a useful exploration to solve the "embarrassment of losing interest in the middle of vivid teaching", which is centered on all students, and enables students to generate knowledge and skills in acceptance participation, generate values and ideas in experience participation, and return to the original care of knowledge and education.

On the basis of regular acceptance of participation, the goal of all-round development of human beings, and purposeful experience participation, it is feasible to "integrate into a spiral rising" movement as a whole, and pursue "successful education".

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