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Analysis of the problems of curriculum objectives of children's programming institutions

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Abstract: Children's programming, as an important part of youth science and technology training, has also ushered in a stage of strong development. As a supplement to public information technology education, children's programming institutions have their own unique internal contradictions - profitability and education. It is precisely the incorrect handling of this contradiction that has led to the alienation of the main product -- children's programming curriculum provided by children's programming institutions.

Key words: children's programming; training institution; curriculum; curriculum objectives

1 Introduction

With the development of computer science in various fields of society, youth science and technology education has reached new heights and popularity. The *Compulsory Education Curriculum Plan and Curriculum Standards (2022 Edition)* revised by the Ministry of Education renamed the information technology course as information science and technology, marking the arrival of a new round of reforms in science and technology education [1]. Most provinces, especially those in the central and western regions, often carry the banner of children's programming institutions [2]. At first, by allowing social capital to enter, children's programming training institutions fulfill the educational aspirations of parents and students to get in touch with programming. However, children's programming has gradually taken the old path of subject training - from "children want to learn" to "children must learn". Once a beneficial supplement to public schools, it now seems to be a pure profit machine.

2 The fundamental contradiction of children's programming institutions

Children's programming institutions are inherently two-sided. The essential, core, and fundamental contradiction of children's programming institutions is "the profit-making needs of commercial institutions and the educational responsibilities of being part of the education system" [3].

The participation of social forces in education has a positive side, especially for those economically underdeveloped areas. At the same time, if children's programming institutions cannot make profits from their activities, then the prerequisites for their continued existence will disappear, and people's educational needs in this regard will still not be met. But at the same time, if children's programming institutions cannot handle the fundamental contradiction between "profit needs and educational responsibilities" and allow capital to expand disorderly, then the consequence will be to follow the

old path of subject training institutions.

3 The failure of educational objectives in children's programming courses

For the vast majority of children's programming institutions, their course objectives are almost just slaves to the training of students with special talents in science and technology: in order to pursue the efficient training of "students with special talents in science and technology", thus forming a good brand image and obtaining more customer resources, they are pathologically obsessed with improving the efficiency of course teaching, taking the syllabus and real questions of various competitions and examinations as the only source for determining course objectives. We refer to this kind of course objective development as "student-oriented" course objective development. Fu Chengyu et al. said in "The Dilemma and Breakthrough of the Implementation of Children's Programming Education": "... its teaching content is systematically constructed based on graphical programming, code programming, and National Olympiad in Information Technology (NOIP) knowledge points. The knowledge granularity is coarse, the course differentiation is low, and the continuity is poor [4]."

4 Analysis on the development of curriculum objectives for "specialty students"

4.1 The death of the integrity and openness of disciplinary knowledge

Discipline knowledge is "the evidence-based explanation and defense formed by a disciplinary community of experts in various academic research fields based on certain beliefs and through a continuous process of inquiry" [5]. However, the development of curriculum objectives for "specialty students" will erase the basic concepts and fundamental principles that will not appear on the test paper from the goal system. Since then, the disciplinary structure that students learn has changed from rigorous, clear-cut, and open to fragmented, unclear priorities, and rigid.

4.2 The alienation of the subjectivity and diversity of students' experience

"The generation and acquisition of experience occur in the mode of 'balance-imbalance-rebalance', and are constantly constructed and generated through the process of assimilation and adaptation. The same is true for student experience [6]." The dynamic and fluid nature of student experience is its fundamental characteristic. However, in the development of "specialty-oriented" curriculum goals, whether the child can master the appropriate curriculum goals at the appropriate time has become the only criterion of whether the child is progressing smoothly on the road of programming learning.

4.3 Lack of diversity and complexity of social needs

Finally, from the perspective of social needs, the curriculum objectives of information science in China are aimed at cultivating students' core literacy. "The key to core literacy is neither simple knowledge and skills nor simple interests, motivations, or attitudes, but the emphasis on the thinking, judgment, expression, and personality traits required to apply knowledge and skills to solve real-world problems [7]." The current curriculum objectives of children's programming institutions lack consideration of core literacy:

"The composition or structural model of information literacy is mainly composed of three elements: information awareness, information ability and information ethics [8]." However, in the current child programming training institutions, the setting of course objectives is mainly limited to whether the designated tasks can be completed. Students' information awareness basically remains at the level of passively receiving information.

Computational thinking refers to a series of thinking activities involved in the process of using the thinking methods in the field of computer science to form solutions to problems. Most of the problems in real life situations are "poorly structured problems", while most of the programming questions used in programming learning under the guidance of the "special students-oriented" course goal are "well-structured problems" with prominent characteristics. Students may be able to transfer knowledge from daily learning to exams, but the effect on their lifelong development is minimal.

Digital learning and innovation refer to the ability of individuals to evaluate and select common digital resources and tools, effectively manage the learning process and learning resources, creatively solve problems, complete learning tasks, and form innovative works. However, there is almost no content to promote students' digital learning. Many students, after learning programming for several years, cannot even use basic computer operations proficiently.

Information society responsibility refers to the comprehensive performance of individuals in terms of cultural accomplishment, moral norms, and behavioral self-discipline in the information society. The current curriculum goals of children's programming institutions also tend to ignore this level. Even some children's programming teachers will actively induce or actively teach children to cheat in children's programming exams, such as copying code.

Conclusion

"Programming education is consistent with the student view centered on child development, the curriculum view based on real life, and the teaching view based on problem solving, and has important educational significance [9]." However, profit has become the master of the operation logic, resulting in the "specialty student-oriented" curriculum goal development model. Recognizing this "tragedy" in the field of children's programming will help us recognize the current situation of children's programming, think about the way out for children's programming.

Conflicts of interest

The author declares no conflicts of interest regarding the publication of this paper.

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