

A case analysis on the curriculum development of adaptive functional education for children with mental retardation in mainland China

(overview essay)

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Abstract: *The cultivation of social adaptability is an important part of education for children with mental retardation. The curriculum of adaptive functional education is guided by the relevant theories of social adaptation, it is an extremely important part of the curriculum of education for children with mental retardation, its basic idea and operation flow are suitable for curriculum development in a wide range of fields. Taking a specific case as the basic starting point, this paper introduces a common method of developing this kind of curriculum for special educators in mainland China. The specific steps include the definition of curriculum concept and scope; the formation, analysis and evaluation of the curriculum objectives; the formulation of teaching objectives; the design of relevant teaching materials and supporting schemes, and so on.*

Keywords: *Curriculum development, adaptive functional education, activity analysis, teaching materials*

1 Introduction

The mental retardation is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains. Three criteria must be met: deficits in intellectual functions; deficits in adaptive functioning that result in failure to meet developmental and socio-cultural standards for personal independence and social responsibility; onset of intellectual and adaptive deficits during the developmental period. Among the three criteria “intellectual function” is relatively stable. While the “adaptive function” has a considerable degree of plasticity, without ongoing support, the adaptive deficits limit functioning in one or more activities of daily life, such as communication, social participation, and independent living, across multiple environments, such as home,

school, work, and community(American Psychiatric Association, 2013), so it is the emphasis of education.

In a broad sense social adaptability is about the same as adaptive behaviors, while it refers to interpersonal or social skills in a narrow sense. Social adaptability has always played an important role in the definition of mental retardation and in the process of education. It and academic development are the two main lines in the design of curriculum for children with mental retardation(Deng Meng, Lei Jianghua, 2006). It includes a series of conceptual, social and practical skills. The assessment and education of social adaptive behaviors must take into account the natural and social ecological environment of students with mental retardation and the limitations of cognitive development level and individual age characteristics, and collect information through multiple channels(Wei Xiaoman, Wang Peimei 2004).

Adaptability refers to the harmonious relationship between children with mental retardation in the real society and the environment, and this kind of coordination is achieved through education to improve its function. The adaptive functional education refers to the cultivation of the ability to adapt to the environment for children with mental retardation in some planned and step-by-step processes (Zhang Wenjing, Xu Jiacheng, 2002). It is the special education theory and operation mode that takes the social adaptation skills of children with mental retardation as the educational contents, aims to cultivate their abilities to adapt and participate in normal social life.

2 The meaning and characteristics of the curriculum of adaptive functional education

There is a lot of literature on the“curriculum”, and many different opinions on the definition of the curriculum. The diversity of curriculum definitions can be broadly grouped into the following three categories: making the curriculum as a discipline, a kind of activity, or all the disciplines, all the activities that conducted by the teachers(Fiona, Tracey, Barbara, Junghwa, 2017); making the curriculum as an objective or a plan(Oliva, P, 2005); making the curriculum as a learner’s experience(Foshay, 2000). The curriculum of adaptive functional education is an important type of curriculum in the field of education for children with mental retardation.

2.1 Meaning of this type of curriculum

The curriculum of adaptive functional education is guided by the relevant theories of social adaptation, it aims to promote individual adaptation, family adaptation, school adaptation, community adaptation or occupational adaptation. Its curriculum form is often a life-based, ecological comprehensive curriculum.

2.2 The core ideas and characteristics of this type of curriculum

The curriculum of adaptive functional education pays attention to the practical content in the students' learning and life. Its core ideas and characteristics are as follows(Zhang Wenjing, 1998):

The purpose of the adaptive education: to promote the individual adaptation, social adaptation, occupation adaptation of the children with mental retardation;

Taking functional education as the means: to teach them the most useful things, the most effective things, and to promote the ability of adapting to the functional things;

Taking individualized education as its principle: to develop individualized education and teaching plan, to implement individualized education services;

Taking normal children's physical and mental development as the clues: with the order and rule of physical and mental growth of ordinary children as the standard;

Providing support and assistance: the establishment of support system, this system will promote the implementation of education and teaching, operation, and make the effectiveness of education;

Making use of life in nature normal environment to create the environment for the needs of children with mental retardation: teaching activities placed in the children's natural, normal life;

Promoting the integration of teaching activities: to choose the types of core curriculums, to enhance students' learning of life, to emphasize the reality of learning problem.

The curriculum of adaptive functional education has many forms of expression, among them the evaluating types can be used as the content and basis of educational diagnosis and evaluation, they can provide guidance for the formulation of individual education programmes, and reveal the degree or content of the support assistance for students and the teaching content. The development of adaptive functional education curriculum is in the ascendant in mainland China. Under the guidance of the relevant theories of the adaptive functional education and the curriculum development, the author takes the case child's „ elevator using „ as the object, and introduces in detail a common operating method for the development of this type of curriculum by special educators in mainland China.

3 The basic information of the case child

Wang X, male, born in 1999, with moderate mental retardation. His sensory perception ability is good; coarse and fine movement ability develops well; he can carry on simple oral communication, can use the body language commonly used in his daily life; generally speaking, his mood is relatively good, when the mood is not very

stable, likes to clap hands to express his anxiety; cognitive skills such as memory, classification, problem-solving, etc. are poor; interpersonal skills, family skills, community use, leisure skills, etc. are also bad. He lives in the downtown area of a lift apartment, his parents' cultural level is very high, the relationship of the family members is very harmonious, and they attach great importance of the details in life to educate their child. Wang X could identify eleven numbers from 0 to 10; numbers 11 to 20 can sometimes be identified correctly; waiting, observation and color recognition ability are good. He is conscious of taking an elevator, but he cannot be carried out independently, in many cases, verbal advices or physical assistances are required. His parents are also very much in the hope of making him have the ability under the guidance of the school teacher and others.

4 Methodology

This study mainly adopts the method of case study, mainly through observation, interview, evaluation and other specific methods to collect data. First of all, defining the idea and scope of use of the curriculum. Secondly, by using activity analysis method and taking common children of the same age as reference, the target behavior is analyzed in detail, and the activity analysis table of individual goal behavior is obtained. Then with the behavior activity analysis table as the basic clue, the parents, the school teachers (especially the teacher in charge of the class), the life teacher, the classmates were interviewed. At the same time, the author evaluated the case child himself and analyzes the various factors and their interaction in his elevator using environment. Finally, according to the information collected to refine the individual educational objectives of the case, analyze his educational needs, and on these basis, design related courses and support strategies for the case child to form a systematic adaptive functional education curriculum for target behavior.

In order to protect the individual privacy, this article does not contain any specific names, any pictures or names about schools or institutions related to the boy. Furthermore the most salient feature of the case study approach is the true story that describes the objective world, and most of them use inductive methods in a objective manner. Therefore, the materials obtained by the case method can also be scientific and accurate, and have high literature value. To a large extent the research of education is a process that cannot be replicated accurately. So if the typical cases that occurring in this process are analyzed and studied deeply and meticulously, including collecting the background of the case, specific materials, the results of the investigation and interviews, and the assessment and reflection of the persons concerned, describing truthfully the “story” that happened in the process. The process and the results themselves have great literature value, so we can use them to compare the similar cases (Maňák, Švec, Švec, 2005).

5 The idea and scope of this curriculum

Curriculum development can be defined as the systematic planning of what is taught and learned in schools as reflected in courses of study and school programs. These curricula are embodied in official documents (typically curriculum “guides” for teachers) and made mandatory by provincial and territorial departments of education. The primary focus of a curriculum is on what is to be taught and when, leaving to the teaching profession decisions as to how this should be done (Limon E. Kattington, 2010). It contains series of steps, such as making sure what educational purposes should the school seek to attain, judging what educational experiences can be provided that are likely to attain these purposes, thinking about how can these educational experiences be effectively organized, deciding how can we determine whether these purposes are being attained (Ralph W. Tyler, 1988). There are a lot of models about the curriculum development, in this article the objective-oriented model is the main one.

5.1 Basic idea

The curriculum idea is about the basic perception and core concept of curriculum, it is the soul and support of all the links that follow the course operation. It will profoundly affect the breadth and depth as well as presentation of the curriculum objectives, curriculum content, curriculum organization and implementation or the development and utilization of curriculum resources. This curriculum intends to adopt the theory of adaptive functional education, that is, to make the children to adapt to the environment, and to enhance his function in adapting to the social life, according to the characteristics, the basic ideas of this curriculum are as follows:

This curriculum must be able to meet the individual needs of the student;

This curriculum must be able to develop the ability of the student to improve his ability to adapt to the environment;

This curriculum must improve the life quality of the student..

5.2 Definition of the application scope of the curriculum

The application scope of curriculum mainly refers to the limitation of time, place, situation, object and so on. It is one of the important viewpoints of curriculum development and application. The terrain where the case child lives is mainly the mountain, the urban population is very large; the buildings are generally very high; residents mainly take elevators up and down the floor. The correct use of elevators is one of the basic abilities to meet the needs of local urban life, to improve the quality of life and meet their needs of traveling.

This course is only designed for the student to take the elevator. In his life, all the major fields of taking the elevator involved: his home, his grandfather and aunt's

community, the hospital and large shopping malls and supermarkets near his home. The elevators in these places are not the same style, but the basic abilities to use the elevators for a person are the same. So in order to avoid repeated discussion, in this course, we do not consider the different places, they are discussed in a unified manner.

6 Analysis and evaluation of the behavior objectives of the curriculum

The objective-oriented model of curriculum development makes the goal as the foundation and core of whole process, it bases on the determination, realization and evaluation of the curriculum objectives. It places particular emphasis on behavioral objectives. That is, stating the curriculum and teaching objectives in the form of concrete, actionable behavior to point out the behavior changes of the students after the end of the course and teaching process. Its basic characteristic is the accuracy, concreteness and maneuverability of the objectives(Zhang Hua, 2000).

For a normal 8 years old child, who was born in the city, through daily observation and learning, he has learned to use the elevator. But due to their inherent obstacles, the children with mental retardation often have a lot of difficulties in color discrimination, digital identification, hand eye coordination, patiently waiting, and cannot use of the elevators independently. Therefore, it is necessary to make detailed analysis of the relative activities, in order to help them complete the activity through some small steps. The specific analysis way is as follow:

The first step: according to the process of the activity itself, “using elevator” is subdivided into three sub activities: „getting into the elevator“, „taking the elevator“ and „getting out of the elevator“.

The second step: observing the activities and procedures of the elevator using for ordinary children of the same age. Sum up the above three sub-activities to their typical behavior requirements, and describe them with specific behaviors.

The third step: check every behavior in the description list and judge if it is necessary for Wang X, and determines the necessity of action. In the case of having no influences on the adaptive factional outcome, then delete the items that irrelevant, beyond his present ability level or not so urgent. The details are as follows (Li Baozhen, 1997):

Table 1: *Activities analysis of the case child's elevator using*

Activities analyses	Necessity check		remarks
	necessary	unnecessary	
Find the elevator entrance	√		
Move quickly to the elevator entrance		×	Not urgent
Notice the arrow symbol of “↑” “↓”	√		
Press the arrow symbol of “↑” “↓” with the right posture and strength	♀		As long as he can achieve the goal
Wait quietly at the elevator entrance	√		
Walk into the elevator quietly and quickly	♀		Needs prompt
Notice the digital keystroke screen	√		
Press the number key for the right floor with the right posture and strength	♀		Reduce difficulty
Find the right place to stand	√		
Identify the hazards in the elevator		×	Beyond present capacity
Wait quietly in the elevator	√		
Use the alarm button		×	Beyond present capacity
Keep an eye on the current floor number	√		
Notice the floor indicator number he wants to reach	√		
Friendly interact with other people in the elevator		×	Not urgent
Waiting for the elevator door to open	√		
Help others as much as he can		×	Beyond present capacity
Line up and quiet to walk out of the elevator	√		
Immediately leave the elevator, do not look back	♀		Needs prompt
If doesn't get out in time, press the button “Open the door” quickly	♀		Needs prompt

* instructions:

1. “√” indicates the behaviors that they are necessary to be reserved directly.
2. “♀” indicates the behaviors that they are necessary to be retained, but to be adjusted.
3. “×” indicates the behaviors that they are exceeding current capacity or not urgent.

The fourth step: adjust the selected behavior items to meet the requirements of Wang.

The last step: summarize the behaviors necessary for Wang in the three kinds of activities, and evaluate his ability to use elevators in normal life situations in many

times and different situations. The results are shown in the following table: Summary and evaluation of Wang elevator's behavioral objectives.

Table 2: *Evaluation and result summary of the case child's elevator using*

Proper behaviors	Date and result of assessment				Actual behaviors	Instructional strategies
	12.6	12.7	12.8	12.9		
Find the elevator entrance	3/3	3/3	3/3	3/3	☆	⬆
Notice the arrow symbol of “↑” “↓”	3/3	3/3	3/3	3/3	☆	⬆
Press the arrow symbol of “↑” “↓”	3/3	1/3	1/3	2/3	conducts wrongly 4 times in 12 tests for not enough concentration	Oral cues; picture description
Wait quietly at the elevator entrance	1/3	1/3	1/3	1/3	Frequently claps hands hard, and runs with the noise “e, e, e, e...”	Verbal cues; limb assistance
Walk into the elevator quietly and quickly	3/3	3/3	3/3	3/3	☆	⬆
Notice the digital keystroke screen	3/3	3/3	3/3	3/3	☆	⬆
Press the number key for the right floor	1/3	2/3	3/3	1/3	Often presses other numbers , for example: 4、5、6	Accurate identification of the numbers 0 to 9
Find the right place to stand	3/3	3/3	3/3	3/3	☆	⬆
Wait quietly in the elevator	1/3	0/3	0/3	1/3	Sometimes claps his hands or touches others with the noise “e, e, e...”	Verbal cues; limb assistance
Keep an eye on the current floor number	0/3	1/3	0/3	0/3	Often looks around	Verbal cues; digital identification
Notice the floor indicator number that he want to reach	0/3	0/3	0/3	1/3	Often doesn't look or has no response after seeing it	Color perception; verbal cue
Waiting for the elevator door to open	3/3	1/3	3/3	1/3	Sometimes wants to break off the door by hands	Verbal cues; limb assistance

Line up and quiet to walk out of the elevator	3/3	3/3	3/3	3/3	☆	♠
Immediately leave the elevator, do not look back	1/3	2/3	0/3	1/3	After getting out of the elevator, he likes to turn back to see the door before leaving	Physical assistance; verbal tips
If does not get out in time, press the button "Open the door" quickly	0/3	0/3	0/3	0/3	Totally cannot	Create some scenes; verbal cues; body assistance

* instructions:

1. "☆" means the actual behaviors are consistent with the proper behaviors;
2. "♠" means conducting independently without any assistance.
3. "Proper behavior" refers to the behaviors required by the environment and the reference frame are the children at the same age; "actual behavior" refers to the case child's real behaviors in the daily life.
4. The denominator of the score in the table indicates the number of times the evaluations are made, and molecule means the times that the actual behaviors are in conformity with the proper behaviors. For example: "1 /3" means that Wang conducts successfully one time in three tests.

7 Developing teaching objectives

The development of teaching objectives is an important step after educational diagnosis and evaluation. Objectives exist in many forms, ranging from highly specific to global and from explicit to implicit. There is debate over the merits and liabilities of objectives in their varied forms. Those objectives that they are most useful for identifying the intended cognitive outcomes of schooling, for guiding the selection of effective instructional activities and for selecting or designing appropriate assessments. Other types and forms of objectives may be useful in different ways (Lorin W. Anderson, David R. Krathwohl etc., 2001).

The analysis and evaluation of behavior objectives for Wang 's elevator using is devoted to find the starting point of the teaching, and lay a foundation for the future teaching. According to the above assessment table, it is not difficult to find that the following aspects should be further improved, so these aspects are extracted as teaching objectives:

Being able to click the buttons of "↓", "↑" exactly;

Being able to wait at least 3 minutes quietly at the elevator entrance and inside the elevator;

Being able to accurately point out the right figure from 1 to 10;

Being able to gaze at display screen for at least one minute;

Being able to go out after the door of the elevator is open;

Being able to press the opening button accurately;
Being able to quickly leave the elevator and do not look back.

8 Design corresponding teaching materials and related support

8.1 The corresponding teaching materials

The direct purpose of designing teaching materials is to better achieve the intended teaching objectives. After the case student's individual education program about using the elevator was determined, we can design corresponding text materials for use by relevant personnel, besides carry on teaching around a given objective in real situations where elevators are actually used. For example, we can design textbooks for student to use elevators, design teachers' manuals for teaching, design exercise books that help the student understand and master the important and difficult aspects of the textbook, or develop auxiliary materials represented by pictures, audio, video, etc.

All educational materials must be designed in accordance with the relevant norms. In the aspect of developing content and procedure, we must consider the ability of the case student, the conditions and limitations provided by the environment, and the established teaching idea and goal. Take the compilation of student's textbooks as an example, we should pay attention to the integrity and reasonableness of its structure, consider the logical order of arrangement, pay attention to the consistency between concepts, take into account the readability and science. At the same time, the previous study and life experience of the case student should also be considered (Wang Binhua, 2000).

As some researchers have pointed out "the special education curriculums have the function of the soul and the commander in the teaching, and they are generally used for educational diagnostic evaluation, individualized education plan formulation, design and implementation of teaching activities, teaching evaluation, curriculums go through the whole process of teaching." (Zhang Wenjing, 2008). After a period of teaching, the curriculum table above can be used again to assess the situation of Wang, to test the effect of teaching and revise the teaching, or to provide the basis for the follow-up teaching and assessment.

8.2 The related support

The "support" is one of the important concepts of education for children with mental retardation. It is a resource and strategy to enhance personal development, education, interest, and well-being, and to strengthen the individual's function. The development of adaptive behavior is the result of the interactions between the individual and the environment. The cultivation of individual adaptive behaviors cannot be separated from the supports and assistances from the environment, it needs for the

related people and things to cooperate. According to the actual situation of Wang, the author develops the following supported program:

Teaching staff: mainly contain father, mother, aunt, grandfather, grandmother, class teachers and other related persons;

Teaching places: It is mainly the community elevator rooms that Wang often goes through before and after school;

Cooperation among the persons: the major educators need to closely cooperate, implement the life oriented teaching principles, and some activities like numbers identification can also be used in math or games classes.

9 Reflection about the study

This article mainly adopts case study, because of this kind of research does not use the probability sampling method, the study of a typical case is not to infer the results to the population sampled from them, but to illustrate what a case might look like in such a phenomenon. So the purpose of the study is to show and explain, so that people who have similar experiences achieve the purpose of promotion through identification, rather than confirmation and inference. Although the investigation, description and analysis of case adaptive functional education curriculum is only a concrete example, the authenticity of this article is only for a case, in different time and space background, all teachers have differences in the preparation of adaptive functional curriculum, but also have some commonality. In the case of following the relevant research norms, the results of the study can make people with similar experiences achieve the purpose of promotion through reading, experience the resonance of common problems or identity. So even if personal experience is different, the similar purpose can be achieved as long as he agrees with the authenticity of the case I present.

10 Conclusion

Developed to this point, the author provides a relatively complete example of developing the curriculums for adaptive functional education for the case children with mental retardation. In fact, in the field of social adaptation, such as self-care, family life, self-guidance, etc; or the teaching field of daily language, daily mathematics and other subjects; or a wide range of areas such as language rehabilitation, motor rehabilitation, artistic rehabilitation, etc. We can draw up very detailed curriculum plans for case students, case classes, case schools, and even schools in a wider area by reference to the similar idea and operating procedures above.

The general principles of curriculum development for adaptive functional education are as followings: individualization, designing courses based on individual

children-based needs; functionality, facilitating the development of adaptive functional abilities in the process of children-environment interaction; dynamic, basing on the ability of the children with mental retardation to develop constantly; ecology, the preparation and implementation of courses in the normal natural and social ecological environment.

The general steps of curriculum development for adaptive functional education are as followings: determining the idea of curriculum; analyzing the environment and target activities; analyzing the behaviors required in the environment; assessing students' current abilities; drawing up teaching objectives; forming teaching strategies and procedures.

References

- [1] American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders(fifth edition). American Psychiatric Publishing. ISBN 978-0-89042-554-1.
- [2] Deng Meng, Lei Jianghua. (2006). A Research on Curriculum Reform and Objectives of Social Adjustment in Schools for Mental Retardation. *Chinese Journal of Special Education*, 74(8):17–21.
- [3] Wei Xiaoman, Wang Peimei. (2004). The Theoretical Exploration on Assessment of Skills of Social Adaptation for the Students with Mental Retardation. *Chinese Journal of Special Education*, 43(8):19–22.
- [4] Zhang Wenjing, Xu Jiacheng. (2002). Adaptive ability education curriculum theory and practice for mentally retarded children. Chongqing publishing house. ISBN 7-5366-7401-5.
- [5] Fiona, Tracey, Barbara, Junghwa. (2017). Curriculum Mapping across the Disciplines: Differences, Approaches, and Strategies. *Collected Essays on Learning and Teaching*. 10: 75-88.
- [6] Oliva, P. (2005). *Developing the Curriculum*(6th Edition). Pearsen Education Ltd. ISBN 13: 9780205412594.
- [7] Foshay. (2000). *The curriculum: purpose, substance, practice*. Teachers College Press. European Library, edseul.3000088514443.
- [8] Zhang Wenjing. (1998). Brief Introduction of Adaptive- functional Training Course for Mentally Retarded Children. *Chinese Journal of Special Education*, 20(4): 40–44.
- [9] Maňák, J., Švec, Š. & Švec, V. (2005). *Slovník pedagogické metodologie*. Brno: Masarykova univerzita. ISBN 8073151022.
- [10] Limon E. Kattington. (2010). *Handbook of Curriculum Development*. Nova Science Publishers, Inc. ISBN 978-1-60876-527-0.
- [11] Ralph W. Tyler. (1988). *Basic principles of curriculum and instruction*. University of Chicago Press. ISBN 9780226086507.
- [12] Zhang Hua. (2000). *Curriculum and teaching theory*. Shanghai educational press. ISBN 978-7-5320-7139-5.
- [13] Li Baozhen. (1997). *How to develop curriculum*(Unpublished material). Chongqing: Chongqing city Jiang jin xiangyang children's development center.
- [14] Lorin W. Anderson, David R. Krathwohl etc. (2001). *A taxomomy for learning, teaching, and assessing-a revision of Bloom's taxomomy of educational objectives*. Pearsen Education Ltd. ISBN 0-8013-1903-X.

- [15] Wang Binhua. (2000). School-based curriculum theory. Shanghai education publishing House. ISBN 7-5320-7232-0.
- [16] Zhang Wenjing. (2008). Design and implementation of individualized instruction for children with special needs. Chongqing publishing house. ISBN 978-7-5366-9602-0.

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