Study on Influences of Artificial Intelligence Era on Early Childhood Family Education in China

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Abstract. The artificial intelligence era will have important influences on the future society. This paper studies the influences of the artificial intelligence era on the early childhood family education in China. First, the problems in the early childhood family education in China are investigated, then the influences and opportunities of the artificial intelligence era on early childhood family education are analyzed, and finally some applications of artificial intelligence in the early childhood family education are discussed. The study shows that the artificial intelligence era has the potential to provide better family education for children.

1. Introduction
The family is the first environment for children’s life, and everything in the family will leave a deep impression on the minds of children. In the early childhood, children spend most of their time with family members such as parents, and children are just in the cognitive stage, and as a result the family members’ words and deeds will have great influences on the children’s growth.

Unlike kindergarten children receiving a unified education, family education is more flexible and targeted. Every child has his own characteristics and hobbies. Parents know their children better and can devote more effort to them so that children can get more attention. Parents also understand their children’s thoughts and emotions more deeply. If children have emotions, parents can comfort them in time. Parents can encourage children to develop personal hobbies, play with their children, teach and play together, and help them grow up while enjoying family life. At the same time, family education has a high requirement for parents’ comprehensive quality. Children are not mature in their behavior and ways of doing things, but they have a strong ability to imitate. Parents are the models for children to learn, and so parents must set good examples. In other words, rude parents can’t cultivate polite children. It is unavoidable for children to be rebellious if parents insist on their children instead of themselves. Therefore, family education itself is a two-way process: parents provide children with individualized education, while parents constantly strengthen self-learning, self-restraint, set good examples for children, and influence children from all aspects of life. With the rapid development of society, more and more parents begin to realize the importance of family education.

The artificial intelligence era is coming and changing the world, which has exerted important influences on people’s way of life and thinking [1]. The task of education is to train qualified citizens for the future society, so education must adapt to the development of the times.

The remainder of the present paper is organized as follows. Section 2 investigates the problems in early childhood family education in China. Section 3 analyzes the influences of artificial intelligence on early childhood family education. Section 4 conceives applications of artificial intelligence in the early childhood family education. Finally, the conclusions are summarized in Section 5.
2. Problems in Current Early Childhood Family Education in China

Due to historical reasons and the arrival of the artificial intelligence era, there are some problems in the early childhood family education in China. This section investigates and analyzes the typical problems that arise in the current early childhood family education in China [2-5].

2.1. Family Education Goals are Outdated

For a long time, the main goal of family education in China is to study hard, enter into a good university, and find a good job. The family education of children is also for this goal. Parents usually pay attention to children’s quantitative indicators, such as how many words they know, how many math problems they can do, and advantages and disadvantages compared with other children.

Generally speaking, this goal of family education does have a positive effect on improving the quality of the people in the early stages of social development and on changing the fate of people (especially the fate of people at the bottom of the society). However, with the advent of the artificial intelligence era, a large number of traditional good jobs are likely to be completely or partially replaced by artificial intelligence robot, and future employment will undergo qualitative changes.

For example, doctors are a good job in the traditional concept. The current medical treatment mode is: a patient makes an appointment a few days in advance or goes to the hospital to queue up in the early morning, then queues for about 2 hours for the doctor to ask for only 3 minutes, and then goes to examination (usually again need to be queued). If the examination result is not immediately available, the patient has to repeat the previous process. Most of the time, doctors’ work is similar, preliminary consultation, physical examination, and then further judgment based on physical examination result. As for the idea of making judgments, it is often derived from the medical knowledge system, diagnosis process, and knowledge (whether it is practiced by oneself or by others). There are very few creative ideas at work, or even their own ideas are likely to have been found by other doctors and in other hospitals. Obviously, in the artificial intelligence era, such less creative work is largely to be replaced by artificial intelligence, and human beings are mainly engaged in creative work, such as research on how to treat difficult and strange diseases. Other less innovative jobs will also face similar problems. Therefore, traditional family education goals are no longer suited for future needs.

2.2. Parents Spend Insufficient Effort on Family Education

With the development of the times and social changes, young parents can not spend sufficient effort in early childhood family education. The main reason for this phenomenon is that the younger generation is under great pressure at work, which occupies the time that should be spent with their children. For example, a lot of rural migrant workers can only meet their children a few times a year, while urban settlers can meet their children every day. However, a quite common phenomenon for urban settlers is that the children do not wake up when they go to work early in the morning, and when they come back after overtime at night, the children have already fallen asleep, and there is no opportunity to communicate with the children, so they can not carry out effective family education.

Some parents quit their jobs to take care of their children at home full-time, but they are deeply influenced by the internet and indulge in it such that they can not carry out effective family education. For example, a common phenomenon is that children are playing by themselves and parents are busy with mobile phones (browsing websites, WeChat, online shopping, playing games, etc). This way of taking care of children is ineffective accompany or even invalid accompany.

2.3. Parents Lack Scientific Family Education Knowledge

Young parents lack family education expertise and do not know how to scientifically take care of their children. For example, young parents do not know how to hold their children scientifically, how to change children’s wet urine, how to feed milk powder scientifically, how to bathe their children, etc. When children encounter some common health problems, parents do not know how to deal with. For example, when children have eczema, parents have to see a doctor and spend a lot of time queuing up, which makes the child hard and the parents tired. However, the doctor only provides some eczema ointment and advices. With the growth of children, parents do not know how to play and communicate with children, how to guide their children’s physical and mental health development.

2
Although there is a large amount of relevant knowledge available on the network, the good and bad of information exist simultaneously in this era when information expands rapidly, and a large amount of intentional or unintentional garbage information floods the effective information. Young parents need to spend their effort to identify the right knowledge and misleading or even wrong knowledge, some of which are beyond the capability of young parents. In view of the lack of scientific family education knowledge for young parents, it is of great importance to provide scientific and authoritative family education knowledge according to different stages of children’s development.

2.4. Intergenerational Family Education Problem
Intergenerational education, as opposed to parenting, is mainly the responsibility of grandparents to carry out education and raise children. Whether in China’s urban or rural areas, it has become a common phenomenon for grandparents to raise young children. Data show that nearly 80% of families have grandparents involved in upbringing. In rural areas, the participation of grandparents in early childhood education is as high as 90%. The reason for intergenerational education is that young parents are too busy with their work to spend time on taking care of their children. Taking care of children by grandparents is more cost-effective and reassures for young parents than asking for a babysitter. After all, the media have exposed that babysitters abuse children at home alone.

However, Intergenerational education can lead to some problems because there are differences on the values, knowledge and educational methods between grandparents and young parents. First of all, some of the grandparents’ education values are outdated. Many educational ideas handed down by our ancestors have been proved incorrect, or even related to superstition. Secondly, the grandparents’ family education knowledge is limited and outdated. Due to the historical reasons, most of the grandparents’ education levels is not high, their knowledge lags behind the times, and furthermore their learning ability is deteriorates. Grandparents usually pay attention to children’s food, clothing, shelter, transportation, hunger and cold, but do not pay attention to children’s knowledge and ability. Even when it comes to diet, grandparents usually spoil children, and as a result children tend to be picky and partial. Finally, the grandparents’ education method is incorrect. Most of the grandparents are mentally empty after retirement, and young parents are busy with their work and don’t have time to accompany them. Therefore, grandparents regard children as emotional sustenance, which results in “intergenerational doting” and are easy to nurture children into giant babies. Young parents do not approve of this way of education, but grandparents insist on it, which can easily lead to family conflicts. Research shows that the physical and mental health and academic record of the children educated by grandparents are lower than those of the children educated by parents, and the intergenerational education is not conducive to the establishment of parent-child feelings [6, 7].

3. Influences of Artificial Intelligence Era on Early Childhood Family Education
This section combines the problems existing in the current early childhood family education in China, analyzes the influences of the artificial intelligence era on the early childhood family education, and discusses the opportunities of artificial intelligence for early childhood family education.

3.1. Influences of Artificial Intelligence on the Goal of Early Childhood Family Education
In the past, family education for young children mainly focused on the body development and the ability to learn the existing human knowledge, ignoring the psychological development of young children and the cultivation of creativity. In the artificial intelligence era, the employment will undergo subversive changes, because most of traditional jobs will be replaced by artificial intelligence machines, and people are mainly engaged in creative work. The artificial intelligence era is an era of innovation. Science and technology are changing every day. We need to cultivate innovative talents to adapt to future society. Therefore, the objectives of early childhood family education need to be changed, and it is necessary to focus on cultivating children’s creativity.

On September 24, 2017, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council of China issued the opinions on deepening the reform of the educational system and mechanism, and sorted out the talents’ abilities matching the national strategy, among which the key abilities are cognitive ability, cooperative ability, professional
ability and innovative ability. Innovative ability is the core. Therefore, family education should also aim at cultivating these key abilities, rather than traditional skills and experience training.

Creativity stems from thinking. Therefore, cultivating children’s innovative abilities requires getting rid of conventional way of thinking. Parents should not ask their children to follow the way in which their elders think, but should encourage children to form their own ways of thinking. How to cultivate children’s creative ability in early childhood family education is a topic that needs to be studied, such as using artistic activities such as music painting to cultivate children’s innovative ability.

3.2. Influences of Artificial Intelligence Era on the Content of Early Childhood Family Education

3.2.1. Letting parents have more effort to spend on family education. At present, parents do not have enough time to spend on early childhood family education, but with the advent of the artificial intelligence era, things will become better. Because with the development of artificial intelligence, a large number of mechanized and low-tech jobs will be replaced by artificial intelligence robots, social production efficiency will be significantly improved, and social production cost will be greatly reduced. Human beings are mainly engaged in some creative research and development work, and the time and effort required for work will be significantly reduced. Young parents will be able to spend more time and effort on the early childhood family education to cultivate children’s creativity.

In addition, with the development of artificial intelligence, there will be some family education robots that are specially designed to take care of children. The main role of these robots is to provide a supporting role, not a leading role, for the early childhood family education.

3.2.2. Providing targeted family education knowledge for parents. Internet resources integrate a large amount of knowledge information about early childhood family education. Artificial intelligence technology can deal with this knowledge information, based on with different stages of children’s development, provide parents with targeted family education knowledge, and provide reasonable suggestions. For example, parents do not know how to bathe newborn children. Artificial intelligence technology, according to the physical condition of children, combines with family bathing environment and facilities, trains parents through video, pictures, voice and other means, and uses visual perception technology to guide parents to help their children bathe on the spot.

With the development of artificial intelligence, smart families will become more and more common. The smart family is the smallest unit of the smart city. It takes the family as the carrier, the family members as the link, and combines the new information technology such as internet of things, cloud computing, mobile internet and big data to realize a healthy, intelligent, comfortable, safe and caring family life style. Smart Family is the application and embodiment of the concept and technology of smart city at the family level. In smart families, artificial intelligence acquired more comprehensive information, and therefore can actively provide targeted family education knowledge. For example, according to the characteristics of children, artificial intelligence provides parents with game materials which can develop innovative ability, and guide parents how to take care of children.

3.2.3. Integrating parents’ and grandparents’ concepts of early childhood family education. The reason of the generational education problem is the inconsistency between parents’ and grandparents’ concepts on early childhood family education. Artificial intelligence technology can integrate parents’ of grandparents’ education concepts in the society, abandon outdated concepts, give authoritative and scientific knowledge for early childhood family education, and train grandparents’ with scientific family education knowledge in a acceptable way, so as to prompt grandparents to grasp family education knowledge that is more suited for social development in a timely manner.

On the other hand, with the liberation of artificial intelligence technology to most traditional human work, parents can devote more effort to early childhood family education, so that the grandparents in early childhood family education mainly play an assistant role, not a leading role.
4. Typical Applications of Artificial Intelligence in Early Childhood Family Education

4.1. Early Childhood Family Education Assistant Robot
The feature of early childhood family education assistant robot is the inclusion of early childhood family education function into artificial intelligence robots, which is the specific application of artificial intelligence in the field of early childhood family education. In the artificial intelligence era, early childhood family education robots use artificial intelligence and massive internet information to help parents or grandparents provide children with scientific family education, or to provide parents and grandparents with scientific early childhood family education knowledge and targeted early childhood family education advice. Fig. 1 is an intelligent partner robot for children developed by a Chinese company. It can provide children with education, companionship, entertainment, guardianship and other functions. It can interact with children at multiple levels. The robot supports secondary development. Developers can use their imagination to improve the intelligence of the robot and create various interesting scenes for the robot. Children, parents and teachers can program and create stories for robots and upload them to a proprietary app store for all children to share. However, this robot is still far from artificial intelligence. At present, most of the robots that are based on “intelligent learning machine + voice interaction + robot shell” have little relationship with artificial intelligence, but are only toys with some fixed teaching functions.

It should be emphasized that as the development of artificial intelligence, family education robots will become more and more intelligent, but they will still be the participation role in family education, unable to replace the role of parents in family education. For example, in early childhood, parents and other family members are the only objects of communication for children. When children lose the dialogue with their parents, robots become the only object of communication. However, because children’s expression is not very clear, robots can not accurately understand what children are saying and communicate with children. In the long run, children’s curiosity will be eroded, which is not beneficial to children’s innovation ability. In addition, in terms of children’s emotional training, the role of early childhood family education robot can not replace the role of parents.

4.2. Smart Early Childhood Family Education
Smart homes, also known as smart home service platforms which integrates the internet of things, cloud computing, mobile internet and big data technology, can effectively integrate the intelligent control of family equipment, family environment perception, family health perception, household safety perception, information exchange, consumer services and other household life to create a healthy, safe, comfortable, low-carbon, convenient personal automatic control technology home life. Integrating smart homes with early childhood education by applying the idea of smart homes to the field of early childhood education can bring better family education experience for children.

Smart early childhood family education can deal with some complex problems. For example, infants cry endlessly. Artificial intelligence infers that infants are hungry, uncomfortable, in a bad mood, want to go out to play, or other reasons based on perceived information (including previously
perceived information), and feeds back the results to their parents. For another example, if the growth of children’s body is slow, then artificial intelligence system can analyze the genetic causes, nutrition deficiency, unreasonable feeding or other reasons based on the information of parents, daily perception of children’s diet, sleep quality and so on, and provide suggestions for parents.

5. Conclusion
The advent of the artificial intelligence era will have important influences on society, and put forward higher requirements for people’s innovative ability. In the early childhood stage, parents need to pay attention to the cultivation of innovative ability. For the existing typical problems in early childhood family education in China, artificial intelligence is expected to provide scientific guidance and improvement in many aspects of early childhood family education, including education objectives, parent’s effort, parent’s education knowledge and intergenerational family education problem, and helps parents or grandparents provide children with better family education experience.

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