The Study of Problem Solving Stages and the Characteristics of Problem Solvers in Children's Animations

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Introduction

In the contemporary world, animations are considered as effective media in the learning process and as a tool for education. What is shown in the world of animation with color, image, and story theme can express children's feelings, emotions, cognition, attitude, and motivation. Attard and Cremona (2022) believe that animations play a key role in learning life skills, especially problem-solving skills, thanks to the stimulation of children's real-life situations and the relationship that is usually created between the main characters of the animation and the child.

A review of the research background regarding the role of animations in problem-solving skills shows that children get involved in discussions and learn how to analyze and manage their issues and

problems in the real world by following the animation story and dialogues and paying attention to the main issues (Yanping, 2002). Dale and Tully (2011) found that children who watch animation show more creativity and make more progress in solving problems. Ritonga, Safrida, Huda, Supriatno & Sarong (2020) in their research entitled "The effect of problem-based video animation on improving students' critical thinking skills" state that the problem-based video animation teaching model is effective in improving students' critical thinking skills.

In this regard, taking into account that children in today's age, known as the age of media and the internet, are facing various and unpredictable issues and should be able to solve them. Accordingly, basic questions regarding animations as attractive, popular, and widely used learning tools are raised. Answering these questions can be a good guide for parents, teachers, and therapists in choosing animation for different age groups: how animations develop children's thinking skills? What components and structure do they have in this regard? How do they play a role in solving life problems and simulating real-life situations? How and with what process of problem-solving thinking steps can they help children? Can the main characters of the animations with whom children identify be considered models of problem solvers and do the popular animations have these characteristics? Considering the importance of animations in improving problem-solving skills, the present research seeks to answer two basic questions: What are the stages of problem-solving in children's animations? What are the characteristics of effective problem solvers in children's animations?

Methodology

This is a qualitative research of the content analysis type which is carried out using a descriptive-interpretive method. Ten animations were randomly selected from among Academy Award winners from 2000 to 2020 and analyzed based on Dewey's problem-solving steps (Yousefi, 2012) and Griffin's (2005) characteristics of problem solvers. The units of analysis were determined in the examination of problem-solving stages and characteristics of problem solvers based on the dialogues in each sequence.

The findings showed that among the stages of solving the problem, the most frequent stage was related to presenting the solution and examining the solutions, and the least frequent stage was reviewing the results and evaluating them. Among the 10 analyzed animations, *Spirited Away* and *Zootopia* had the most frequent problem-solving steps, and *Brave* and *Frozen* had the least frequent problem-solving steps.

Another result of the research was the analysis of the characteristics of problem solvers. Most of these characteristics were related to efficiency, and the least frequent of them were related to prior knowledge. The characteristics of seeking help and generating different solutions were also observed. Among the animations analyzed in this section, *Coco*, *Spirited Away* and *Zootopia* had the most frequent characteristics of problem solvers, and *Up* and *Brave* had the least frequent characteristics.

Discussion

According to the results of the research, it can be said that the creators of animations, knowingly or unknowingly, give more importance to providing solutions than other steps in developing children's skills. Of course, due to the abundance of problems faced by the character in the animations, it is normal that taking different solutions to solve the problems and showing the consequences of each solution be so frequent. Griffin (2005) also believes that good problem solvers tend to participate in continuous analysis of the problems they see or face and adjust their solutions if necessary to achieve the desired result.

Regarding the results obtained in the examination of problem-solving characteristics, it can be said that the child's brain seeks new experiences at an early age, and s/he is attracted by visual effects in the animation such as the way of speaking, dressing, sound, and visual effects, body language, thinking, and other features. It is enough for her/his brain to automatically follow the course of events and start selecting role models (Jensen, 1998). Therefore, it can be said that the mentioned features are related to the purposes and themes in the script and the film. Perseverance, self-efficacy, resistance, knowledge, etc. are the most important characteristics of problem solvers that children learn by watching the animations.

Conclusion

In general, the results obtained by the investigation of the two research questions indicated that the selected animations play an important role in developing children's problem-solving thinking by showing the processes of problem-solving and highlighting problem solver characters and their personality traits. These animations are different in

their topics (issues related to family, to individual capabilities and interests, to wishes and desires) both in terms of problem-solving stages and in terms of personality characteristics; therefore, they can have effects on children based on their individual differences. This testifies to the importance of animations in education.

Keywords: animation, problem-solving thinking, Dewey's problem-solving stages, Griffin's characteristics of problem solvers

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