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**DISCUSSION TOPICS**

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**CONSERVATION**  
**PIAGET'S DEVELOPMENTAL THEORY**

(29 Minutes)



**DAVIDSON** *films*

*Expanding the Mind's Eye since 1955*

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## INTRODUCTION

*This video deals with a range of children from age 6 to age 12. One of the ways Jean Piaget studied the development of cognition was with “conservation” tasks. Conservation in the Piagetian sense refers to the ability to keep track of what stays the same in a system despite some changes. Children are presented with challenges in the areas of the conservation of volume (liquids and blocks), length, and area.*

*The tasks are presented by Robert Karplus and Celia Stendler Lavatelli.*

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We hope that you will send us topics for discussion that we may share with other instructors. Some of the topics can be used as essay questions, others as leads to discussion in class and still others are musings by the producer about what did not get into the videos. Please email us reactions and suggestions so we can continue to make the topics more useful.

Our email address is [dfi@davidsonfilms.com](mailto:dfi@davidsonfilms.com).

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## DISCUSSION TOPICS

1. This video is the progenitor of our *CLASSIC PIAGET* series. It was the first one made and has been viewed by numerous students over the decades. You may be one of the many professors who saw this in its 16mm form as a student. Both of the narrators, unfortunately, died too young. Celia Stendler Lavatelli was a mentor to many professionals in the area of human development and did much to bring Piaget’s work to this country through her many articles and books.

Robert Karplus was the head of the physics department at the University of California, Berkeley when he was recruited to work on the science curriculum movement of the 1970’s. In trying to assess the changes his science programs made in the thinking of young students, he became intrigued with the ideas of Piaget. It was he who urged Davidson Films to do this project. The company was until this film solely a producer of science and mathematics films for other distributors. Robert Karplus went on to educate a whole generation of science educators who remember him with great fondness. He also founded the Lawrence Hall of Science in Berkeley

which has been an inspiration for other interactive children's museums of science. His work was recently memorialized by Jerome Bruner. The chapter is entitled "Narratives of Science" in Bruner's *The Culture of Education*, Harvard University Press, 1996.

2. Piaget was ingenious in creating tasks to demonstrate children's thinking. The "pouring water" one is probably the best known. If possible have your students perform it with children of various ages. Or is there a task you prefer to get over the point that children's thinking IS different from adults'?
3. One of the points that this video demonstrates is that there is not complete consistency in a child's thinking. A six year old does not wake up one morning with concrete operations. The boy who had trouble with the 'conservation of length' task was very eloquent in his explanation of why the higher column of liquid was equal to the lower. Piaget referred to this phenomenon as "horizontal *decalage*", which means lack of immediate transfer across similar tasks at the same age. ("*Decalage*" with an accent on the first "e" means "lag" in French.) Generally a child is able to conserve liquids (sometimes referred to as "continuous quantity) before length or weight. Volume comes last.
4. Piagetians do not think that experience alone can explain why very young children cannot solve some of these tasks. Four year olds who have had lots of experience with pouring sand in sandboxes and liquids in bathtubs, kitchens and snack tables still insist that the taller container has more than the shorter one. The question is whether experience hastens the development of higher reasoning levels? This becomes somewhat political when actual instruction as in arithmetic is involved.
5. Constructivists insist that a lot of experience with manipulating objects is necessary to attain the understanding of one to one correspondence and the associative principle. Traditional education has seen manipulatives as a temporary crutch, insisting that mathematics can be directly learned. Where are you on this argument?
6. Have your students demonstrate the associative principle with simple addition and with symbols.
7. The Piagetian insistence that children explain their reasoning sometimes appears as bullying and/or very subjective. In our era of high stakes testing, we are used to accepting an answer as "right or wrong" and don't usually question how it was arrived upon. A discussion of the place of essay questions or demonstrations for assessment purposes might be very interesting.
8. Can your students create some tasks for elementary school aged children that encompass reversibility?

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## RELATED FILMS

*Available from Davidson Films*

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***PIAGET'S DEVELOPMENTAL THEORY: AN OVERVIEW*** (1989) 25 minutes

***CONCRETE OPERATIONS*** (1993) 25 minutes

***ADOLESCENT COGNITION: THINKING IN A NEW KEY*** (1999) 30 minutes

***MORALITY: JUDGMENTS AND ACTION*** (2002) 32 minutes

*This video is part of the **Classic Piaget** collection.*

*The other videos include:*

**Classic Piaget Collection Volume 1:**

***CLASSIFICATION*** (1968) 16 minutes

***CONSERVATION*** (1968) 29 minutes

***GROWTH OF INTELLIGENCE IN THE PRESCHOOL YEARS*** (1971) 31 minutes

**Classic Piaget Collection Volume 2:**

***FORMAL REASONING PATTERNS*** (1978) 32 minutes

***JEAN PIAGET: MEMORY AND INTELLIGENCE*** (1973) 44 minutes

***MORALITY: THE PROCESS OF MORAL DEVELOPMENT*** (1978) 28 minutes