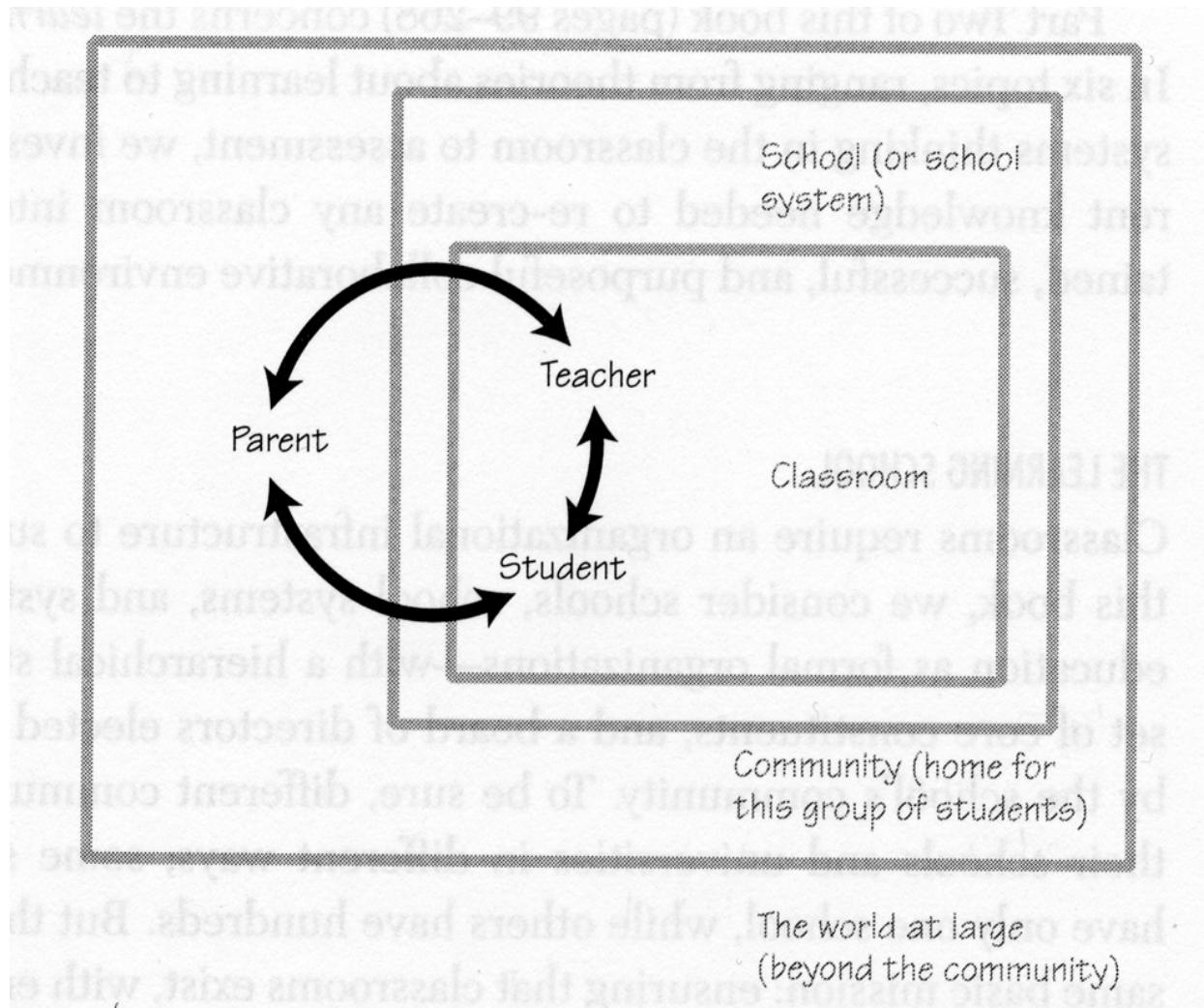


RISK AND PROTECTIVE FACTORS IN PROMOTING SUCCESS IN SCIENCE EDUCATION

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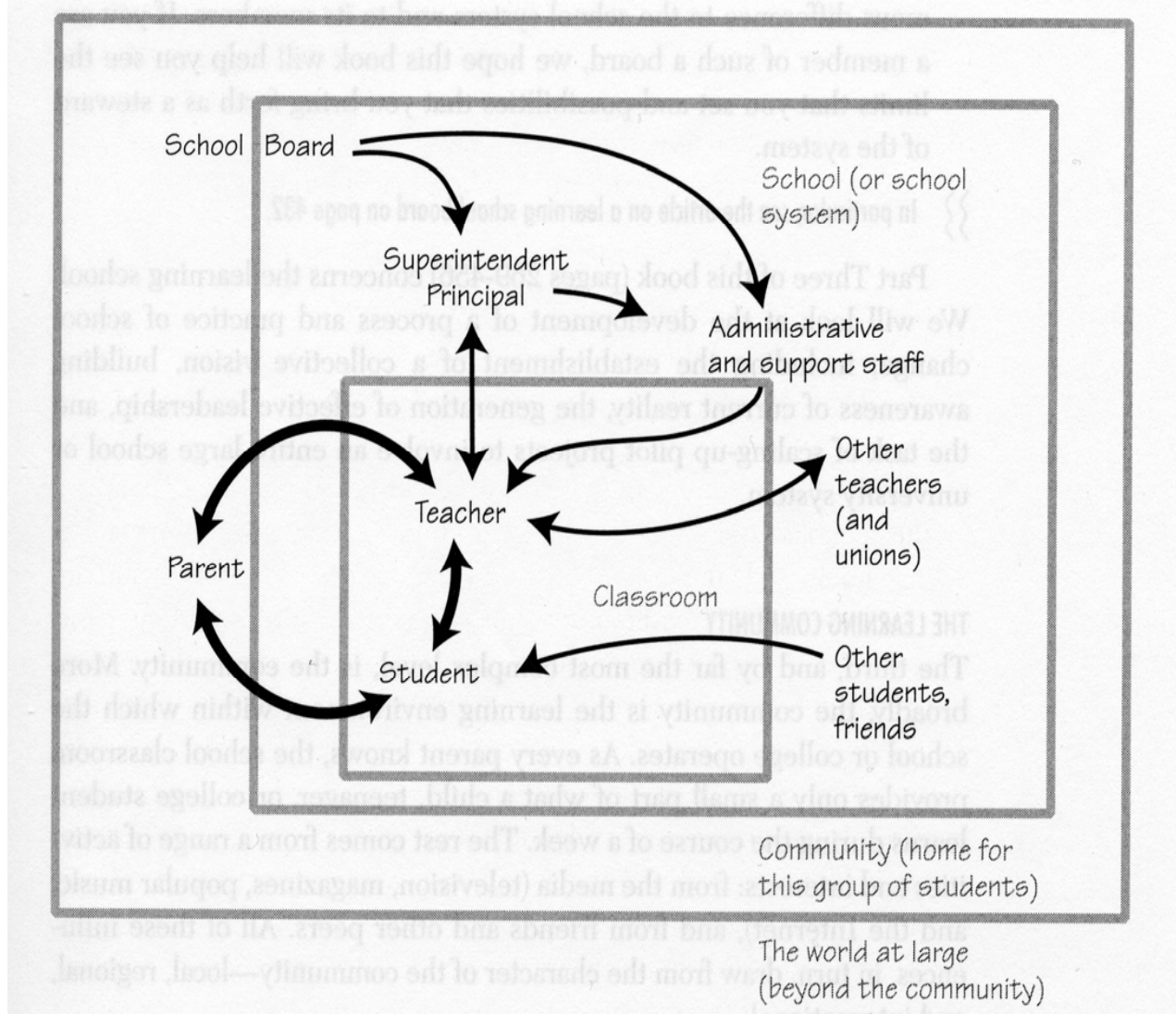
DIRECTOR - CRYSTAL MANITOBA





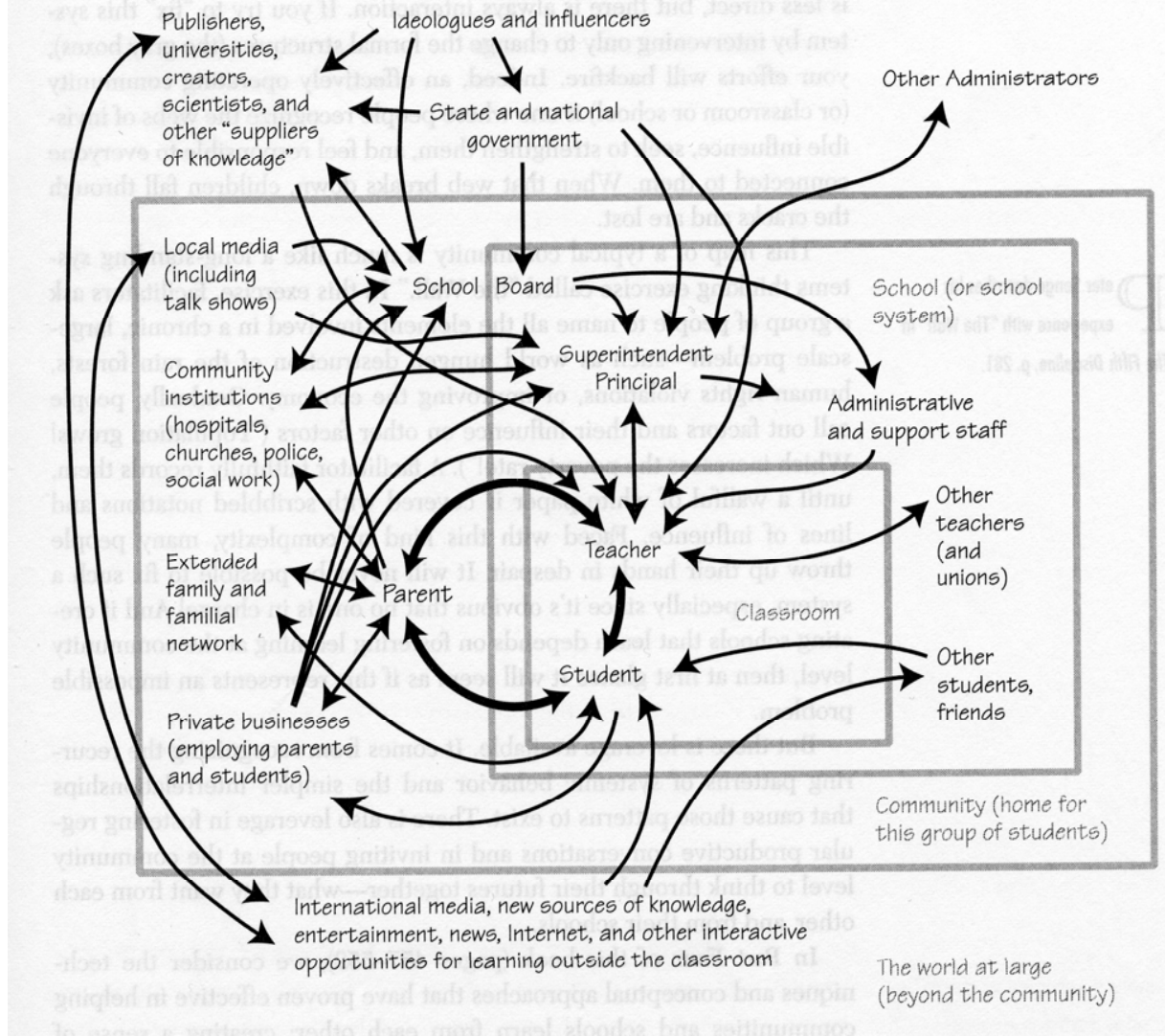
From Senge et al, 2000





From Senge et al, 2000





From Senge et al, 2000



THE NESTED SYSTEMS (SUTHERLAND)

- (A) THE DYNAMIC SET OF COGNITIVE AND SOCIAL NEGOTIATIONS THAT A YOUNG PERSON MUST NAVIGATE (THE INDIVIDUAL LEARNER)**
- (B) THE DYNAMIC INTERACTIONS BETWEEN A YOUNG PERSON AND HIS/HER IMMEDIATE SURROUNDINGS (THE CLASSROOM AND SCHOOL SYSTEM)**
- (C) THE DYNAMIC INTERACTION WITH THE IMMEDIATE COMMUNITY IN WHICH A YOUNG PERSON LIVES AND PERFORMS (THE LOCAL SYSTEM)**
- (D) THE MUCH LARGER AND RAPIDLY CHANGING GLOBAL ENVIRONMENT FROM WHICH A YOUNG PERSON IS BY NO MEANS SEPARATED (THE GLOBAL SYSTEM).**

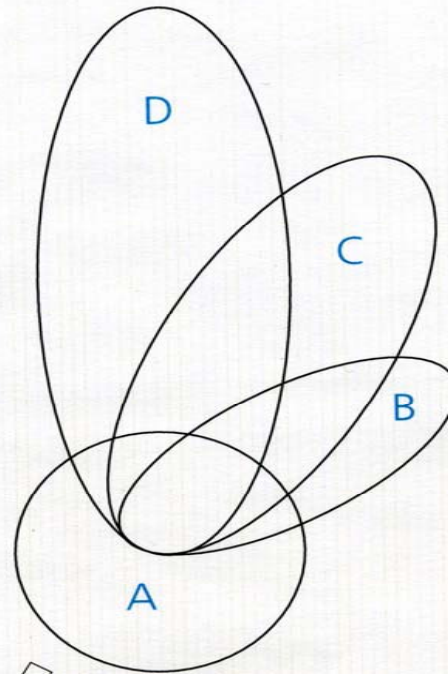


THE LANGUAGE OF BRONFENBRENNER (1979)

- (A) THE MICROSYSTEM
- (B) THE MESOSYSTEM
- (C) THE EXOSYSTEM
- (D) THE MACROSYSTEM



SYSTEM INTERACTIONS

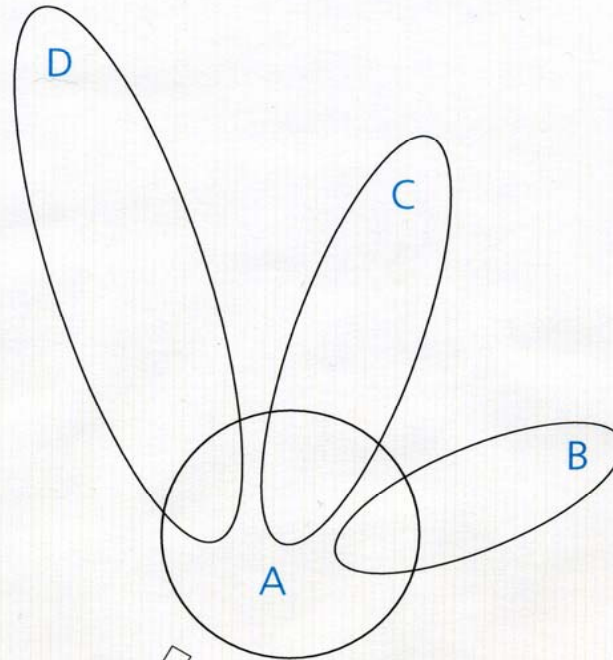


A = the individual learner as a system
B = the classroom and school system
C = the local system
D = the global system

Emergent Property =
Increased Success
in Science and
Mathematics

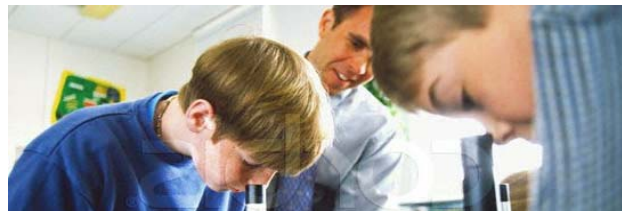


SYSTEM INTERACTIONS



A = the individual learner as a system
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RISK FACTORS, PROTECTIVE FACTORS, AND RESILIENCY (RUTTER 1979, 1984; BERNARD 1992)

- (A) A RISK FACTOR IS ANY FACTOR THAT MIGHT
CONTRIBUTE TO A NEGATIVE
DEVELOPMENTAL TRAJECTORY**
- (B) A PROTECTIVE FACTOR IS ANY FACTOR THAT
MAY MITIGATE AGAINST THE IMPACT OF RISK**
- (C) RESILIENCY IS THE NET SET OF RESOURCES
THAT RESULT FROM THE MITIGATION OF
RISK FACTORS BY PROTECTIVE FACTORS**

