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Autore	Bertolo David
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Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Introduction; I.1. Observations and motivations; I.2. Contributions; I.3. Book outline; 1: Construction of Spatial Representation and Perspective in Students; 1.1. Spatial representation in children according to Piaget; 1.1.1. From perception to representation; 1.1.1.1. Stage I: "synthetic incapacity"; 1.1.1.2. Stage II: "intellectual realism"; 1.1.1.3. Stage III: "visual realism"; 1.1.2. Projective space; 1.1.2.1. Perspective; 1.1.2.2. Developing relationships between perspectives; 1.1.2.3. Nets (folds and surface development) 1.1.3. Euclidean space 1.1.4. Summary; 1.2. The representation of geometric objects: the status of drawings; 1.2.1. Status of drawings in mathematics: drawings versus figures; 1.2.2. Use of geometrical representations; 1.2.2.1. The three geometrical paradigms of Houdemont and Kuzniak; 1.2.2.1.1. Natural geometry (G1); 1.2.2.1.2. Natural axiomatic geometry (GII); 1.2.2.1.3. Axiomatic geometry (GIII); 1.2.2.1.4. Explanation of the different paradigms; 1.2.2.2. Duval's

cognitive point of view; 1.2.2.2.1. Iconic visualization; 1.2.2.2.2. Non-iconic visualization; 1.2.2.2.3. Dimensional hiatus

1.2.3. The three main functions of drawings in geometry 1.3. From the physical shape to its planar representation; 1.3.1. The institutional perspective; 1.3.1.1. Primary; 1.3.1.2. Secondary; 1.3.1.3. Summary of secondary curriculums; 1.3.2. Teaching 3D geometry; 1.3.3. Different representations of 3D objects; 1.3.3.1. Models; 1.3.3.2. Planar representations of 3D objects; 1.3.3.2.1. Central perspective; 1.3.3.2.2. Cavalier projections; 1.3.4. The conflict between the SEEN and the KNOWN in children; 1.4. Benefits of new technologies and dynamic 3D geometry

1.4.1. Advantages of 3D geometry programs 1.4.2. Limits of 3D geometry programs and consequences; 1.4.2.1. Construction of a cube with Geospace; 1.4.2.2. Construction of a cube with Cabri-3D; 1.4.3. Partial conclusions and initial hypotheses; 2: Mobile Devices and 3D Interactions; 2.1. Why mobile devices?; 2.1.1. A long-standing tradition in mathematics; 2.1.2. Interest from the educational community; 2.1.3. A field reality; 2.2. Mobile devices; 2.2.1. Different types of mobile devices; 2.2.1.1. Mobile phones/smartphones; 2.2.1.2. Portable video game consoles; 2.2.1.3. Ultra mobile 2.2.1.4. Tablets 2.2.2. Entry systems of mobile terminals; 2.2.2.1. Keyboard / Buttons; 2.2.2.2. Joysticks; 2.2.2.3. Touchscreens; 2.2.2.3.1. A bit of history; 2.2.2.3.2. Capacitive; 2.2.2.3.3. Resistive; 2.2.2.3.4. Infrared; 2.2.2.3.5. Surface waves; 2.2.2.3.6. FTIR (frustrated total internal reflection); 2.2.2.4. Sensors; 2.2.2.5. Camera; 2.2.2.6. Microphone; 2.2.2.7. Our choice; 2.3. Interactions on mobile devices and physiology; 2.3.1. Specificities of mobile devices; 2.3.2. Limitations due to physiologic characteristics; 2.3.2.1. Imprecision of fingers 2.3.2.2. Characteristics of the hand

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