Fig. 3 *Experimental layouts and geometric model.* Three separate geometric layouts (panels **a–c**) varied the relative positions of the camera, artificial eye, and monitor. Each layout is diagrammed from three vantage points (top, side, and front). All distances are in millimeters. Pupil calibration (experiment 1) and pupil foreshortening (experiment 2) were measured for each layout. The geometric model (**d**) estimates the foreshortening of the pupil area as a function of the cosine of the angle θ between the eye-to-camera axis OC and the eye-to-target axis OT. The origin O of the coordinate system is at the center of the artificial pupil. The x-axis is horizontal and parallel to the bottom edge of the screen, growing rightward. The y-axis is vertical, growing upward. The z-axis is perpendicular to the screen, growing inward