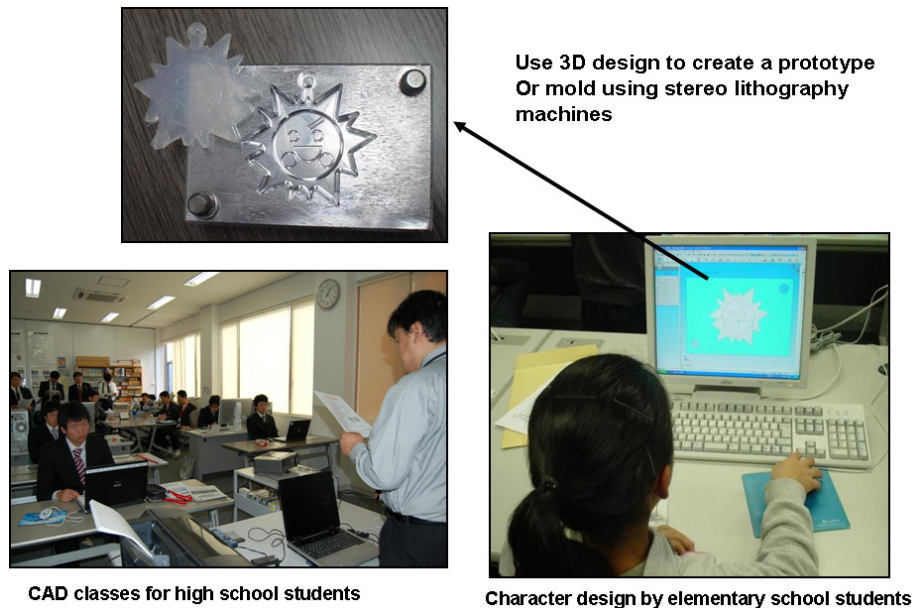




design: - The seminars for elementary school children are said to be especially popular (Figure 3.3). Using the models created, the children experience 3D printing on laser stereo lithography machines and make their own physical models of their designs. These efforts to promote 3D design are expected to boost the resources and underlying strength of the region's industry. The municipality believes that 3D CAD design data has value beyond a single company's needs because, in addition to the company which created it, related partner companies then use the 3D data and so on through the manufacturing process - and only people and companies with 3D literacy and skills will be able to exploit



this.

Figure 3.3. CAD classes for Elementary and High School students

### ▶▶ The Need for Lightweight 3D Data

So what changes are needed as 3D CAD data is used in downstream processes? 3D CAD is essentially a tool for design, and is not something which the layman can easily and quickly use. After a design is approved, the 3D design data should be referenced at the manufacturing floor but should not be able to be changed or corrected. When using 3D on the shop floor, users need to reference the 3D data and extract the information needed to do the job at hand.

But the more 3D CAD is used in design, the more the tendency arises for problems shown in Figure 3.4 to occur in downstream processes. The phenomenon seen is as follows: