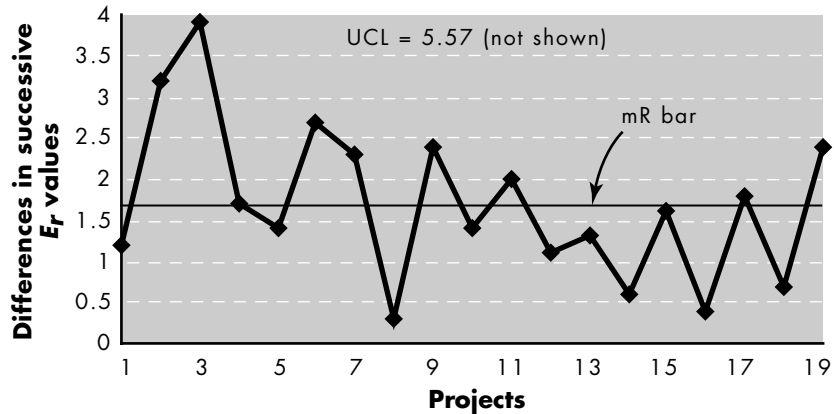
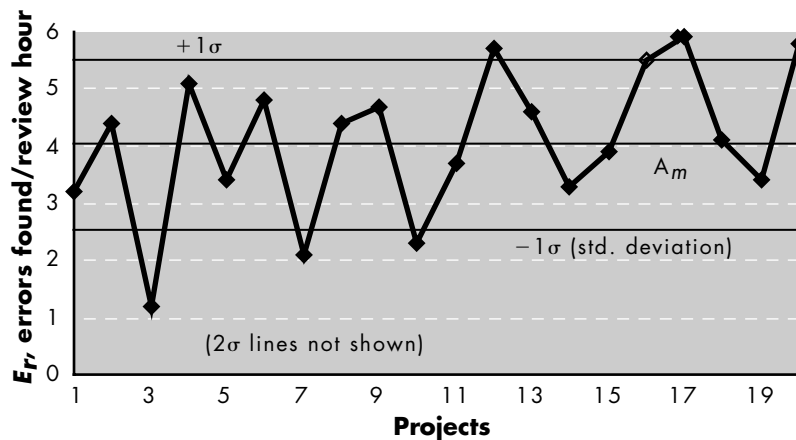


**FIGURE 4.9**  
Moving range control chart



**FIGURE 4.10**  
Individual control chart



lines is less than 0.0, it need not be plotted unless the metric being evaluated takes on values that are less than 0.0.

Applying these steps to the data represented in Figure 4.8, we derive an *individual control chart* as shown in Figure 4.10.

Zultner [ZUL99] reviews four criteria, called *zone rules*, that may be used to evaluate whether the changes represented by the metrics indicate a process that is in control or out of control. If any of the following conditions is true, the metrics data indicate a process that is out of control:

1. A single metrics value lies outside the UNPL.
2. Two out of three successive metrics values lie more than two standard deviations away from  $A_m$ .
3. Four out of five successive metrics values lie more than one standard deviation away from  $A_m$ .
4. Eight consecutive metrics values lie on one side of  $A_m$ .