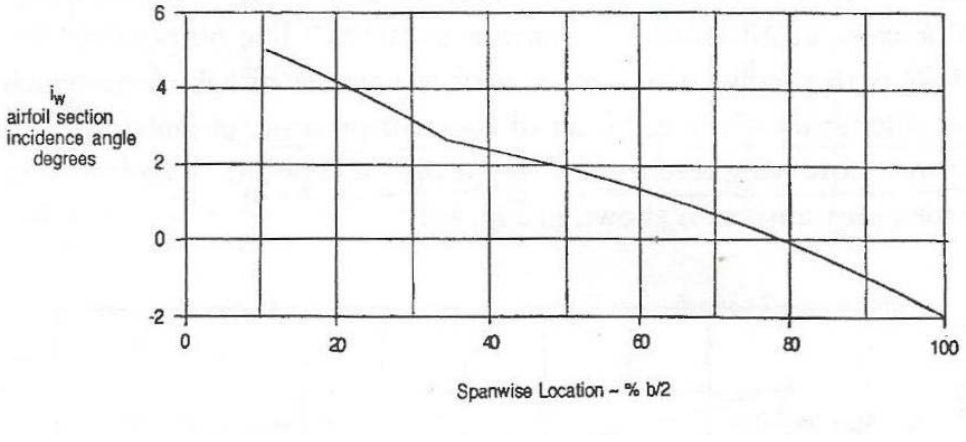
4.3.4 Twist

In Raymer Fig. 4.24, the point marked “Raymer 1977” refers to a low-cost bomber concept, shown in Figure 2.6. In order to minimize manufacturing cost, the wing was designed with no twist or taper. If this wing were swept aft, the spanwise lift distribution would be far from elliptical, resulting in increasing induced drag. The wing was therefore swept forward in order to maintain a spanwise lift distribution that was close to optimum. However, forward sweep requires additional structural weight to prevent structural divergence (i.e. the wing twisting uncontrollably at high dynamic pressure) so this concept was not adopted.

For a commercial aircraft, a typical wing twist distribution is shown in Fig. 4.3.4.1.



Source: Schaufele

Fig. 4.3.4.1 Typical Wing Twist Distribution for a Jet Transport