This paper establishes a very general result on the existence of competitive equilibria for exchange economies (with a finite number of agents) with an infinite-dimensional commodity space. The commodity spaces are Banach lattices but no interiority assumptions on the positive cone are made. In particular, the commodity spaces covered by this result include all the sequence spaces $l_p$ ($1 < p < \infty$), all the Lebesgue spaces $L_p$ ($1 < p < \infty$) and the space $M(\Omega)$ of measures on a compact metric space. Moreover, this result applies to preferences which may not be monotone, complete, transitive or convex; preferences may even be interdependent. Since preferences need not be monotone, the result allows for prices which need not be positive, and an exact equilibrium is obtained rather than a free-disposal equilibrium.