The main objective of this study is to determine whether boys and girls learn better when the characteristics of the pedagogical agent are matched to the gender of the learner while learning in immersive virtual reality (VR). Sixty-six middle school students (33 females) were randomly assigned to learn about laboratory safety with one of two pedagogical agents: Marie or a drone, who we predicted serve as a role models for females and males, respectively. The results indicated that there were significant interactions for the dependent variables of performance during learning, retention, and transfer, with girls performing better with Marie ($d = 0.98$, $d = 0.67$, and $d = 1.03$; for performance, retention, and transfer, respectively) and boys performing better with the drone ($d = −0.41$, $d = −0.45$, $d = −0.23$, respectively). The results suggest that gender-specific design of pedagogical agents may play an important role in VR learning environments.