We have studied polarization effects in the photoassociation of two colliding ultra-cold Na-atoms. In a first step the two colliding atoms absorb a laser photon to associate to a singly excited molecule in a bound state of the $0_g^-$ or $1_g$ potential. In a second step the excited molecule absorbs a second photon and is further excited to a bound level in a doubly excited potential ($0_u^-$ or $1_u$ which are autoionizing). By measuring the produced ions with parallel and perpendicular polarizations of the two laser beams used possible polarization effects can be studied. We find strong polarization effects if a $0_g^-$ state is used as the intermediate state and very little or no effects at all if a $1_g$ state is used. We have developed a theoretical model, which qualitatively describes the experimental results. Essential ingredient in the model is the fact, that in between the two excitation steps the quantization axis of the transient molecule does not rotate in space.