Transition metal oxides are unique due to the presence of unfilled d-orbitals. These unfilled orbitals can significantly affect the electronic properties of a glass. We used lead boro-tellurite glasses doped with Fe$_2$O$_3$ and CoO to study their effect on the optical properties of these glasses. Glasses were prepared by mixing the starting materials in different, pre-determined stoichiometric ratios. The powders were then mixed using an agate mortar and transferred to a porcelain crucible. A furnace was pre-heated to 950 °C and the materials were placed in it for 15 minutes to melt. The crucible was taken out and stirred well to homogenize the glass and to ensure that the transition metal ions were properly dispersed. The melt was then quenched by pouring it onto a thick brass plate. We used a brass washer to obtain nearly circular discs of the glasses around 3cm in diameter. The glass samples are then annealed at 400 °C to remove the thermal strain. After annealing, the glass samples are smoothened and polished. A spectrometer was used to obtain optical absorption data on the samples. The optical properties of the samples varied as a function of glass composition, as can be seen with a color change corresponding to PbO content. We analyzed the optical absorption edge and found that the optical band gap decreases with increasing PbO content. The presence of transition metal ions changes the optical band gap compared to the control (un-doped) samples.