The goal of this Master thesis is to demonstrate Witten´s mechanism in selected extensions of the Standard model based on the Pati-Salam gauge group. The purpose of this mechanism is to obtain an extremely large Majorana mass term for right-handed neutrinos at the two-loop level and consequently light physical masses of neutrinos using the type I see-saw mechanism. The existence of corresponding Feynman diagrams without any interactions of vector bosons is presented. While it is impossible to construct this type of corrections in minimal SO(10) or SU(5)xU(1) model in Pati-Salam model they may be even dominant. Subsequently, implications of possible partial gauge coupling unification or even embedding of the Pati-Salam group into a gauge group of "Great Unified Theory" are considered. At the end the possibility of unacceptably fast proton decay is inspected. The discussed models are concluded to be potentially realistic but only at the cost of predictivity, since completely unknown Yukawa couplings appear in numerous key relations.