In both models of conditional LTA using 1-step approach and using 3-step approach, transition probabilities indicate very similar pattern. Thus our discussion will only be focused on the model using 3-step approach. Transition probabilities are the new sets of parameters in LTA in comparison to cross-sectional LCA. These can be of primary interest because they show how change occurs between latent status over time. Transitional probabilities are typically structured in a matrix with the rows representing earlier time and the columns representing later time. Thus in the current modeling, there are two transitional probabilities matrix. In the first matrix which represents transition from Grade 7 to Grade 10, for those in the Positive latent status at Grade 7 had a 56.7% probability of staying the for Grade 10. If they transitioned, they were most likely to transition to the Indifferent status with 20.8%. Those in the Qualified positive status at Grade 7 had a 38.7% probability of staying there at Grade 10. There most likely transition was either to the Positive (24.7%), or to the Dim (21.4%). Those in the Indifferent status at Grade 7 were least likely to remain in the status (29.4%), which was even lower than the transition to the Positive status (39.9%). Those in the Dim status had a 40.5% probability of remaining. Their most likely transitions were to the Indifferent (29.5%) and to the Qualified positive (19%). The second transition probabilities matrix of a transition from Grade 10 to Grade 12 indicated the same pattern of transitions as described in the first matrix. Because each row of the matrix is conditioned on latent status of earlier time, these analyses of change over time control for latent status of earlier time.

Group differences with respect to the covariates over time are the next focus of analyses. The latent class variables were regressed on the covariates, which took the form of multinomial logistic regression. We selected the Dim class as a reference group, and compared other three classes with respect to the covariates. Because our LTA model is longitudinal with three latent class variables, there were three different sets of logit parameters, standard errors, corresponding t-statistics, p-values, and odds ratios. Both models of conditional LTA using 1-step approach and using 3-step approach produced very similar pattern of covariate effects in terms of the signs of logit estimates and their significance, thus our discussion will only be focused on the model using 3-step approach. Comparing the Grade 7 students in the Positive class to the Dim class, minority students were more likely to be in the Positive although this difference was not statistically significant (logit = 0.396, p > .05, OR = 1.485); female students were less likely to be in the Positive (logit = -1.118, p < .01, OR = 0.327); and students with higher math scores were more likely to be in the Positive (logit = 0.054, p < .01, OR = 1.055). Comparing Grade 7 students in the Qualified positive class to the Dim class, there were no significant differences with respect to their minority and gender status, and math achievement. Comparing the Grade 7 Indifferent class to the Dim class, female students were less likely to be in the Indifferent (logit = -1.014, p < .05, OR = 0.362). Comparing Grade 10 Positive class to the Dim class, minority students were more likely to be in the Positive (logit = 0.914, p < .01, OR = 2.494); and students with higher math scores were more likely to be in the Positive (logit = 0.071, P < .01, OR = 1.073). In Grade 10 when we compared the Qualified positive to the Dim, and the Indifferent to the Dim, there were no significant group differences with respect to minority and gender status. However, prior math achievements had significant effects. Students with higher math achievement were more likely to be in the Qualified Positive (logit = 0.044, p < .01, OR = 1.044) and Indifferent classes (logit = 0.051, p < .01, OR = 1.052), all of which were compared to the Dim class. In Grade 12, minority status only had an effect when we compared the Qualified positive class to the Dim class (logit = 1.166, p < .01, OR = 3.209). Lastly, prior math achievements had a significant effect in all the pair-wise comparison: students with higher math scores were more likely to be in the Positive class than in the Dim class (logit = 0.058, p < .01, OR = 1.282), students with higher math scores were more likely to be in the Qualified positive class than in the Dim class (logit = 0.032, p < .01, OR = 1.032), and students with higher math scores were more likely to be in the Indifferent class than in the Dim class (logit = 0.023, p < .05, OR = 1.023).