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LSAY LCA Project Report

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1. I have conducted reverse coding for all the indicator variables of AB39A, AB39H, AB39I, AB39K, AB39L, AB39M, AB39T, AB39U, AB39W, and AB39X to represent higher means as pro-math and pro-science disposition.

Reverse coding

1 = strongly agree 🡺 1 = strongly disagree

2 = agree 🡺 2 = disagree

3 = not sure 🡺 3 = not sure

4 = disagree 🡺 4 = agree

5 = strongly disagree 🡺 5 = strongly agree

1. I have created two new distal outcome variables STEMJOB and STEMJOB1 by dichotomizing the original distal outcome variable of RSTEMMA:

With STEMJOB, 0 (Not in Workforce) 🡪 0

1 (Non-STEMM) 🡪 0

2 (STEMM Support) 🡪 0

3 (STEMM) 🡪 1

With STEMJOB1, 0 (Not in Workforce ) 🡪 0

1 (Non-STEMM) 🡪 0

2 (STEMM Support) 🡪 1

3 (STEMM) 🡪 1

1. I have created one new distal outcome variables ENGJOB by dichotomizing the original distal outcome variable of RSTEMMX:

11,12,14,15,16,17,18,19,20,21,22,23,24,25,31,32,33,41,42,43,51,52,61,62,63,97 🡪 0

13 (Engineering careers) 🡪 1

1. With all these changes incorporated, new LCA analyses were run, and followings are things to note.
2. Class enumeration

Looking at all relevant fit indices, 4-,5-,6-,7-, or 8-class solutions looked plausible. Thus I created five different estimated mean plots for further analyses.

1. Understanding latent classes

In 4-class solution, C4 of 9.72% class prevalence is an interesting class.

In 5-class solution, C1 of 10.24% class prevalence is an interesting class.

In 6-class solution, C3 of 7.14% and C5 of 21.39% class prevalence are interesting classes.

In 7-class solution, C4 of 18.06%, C5 of 6.60%, and C6 of 2.07% class prevalence are interesting classes.

In 8-class solution, C2 of 6.53%, C3 of 17.85%, and C8 of 2.23% class prevalence are interesting classes.

1. Understanding distal outcome analyses

In 4-class solution, C3 showed the strongest tendency to be in STEMM professions using both variables of STEMJOB and STEMJOB1, means of .127, and .191, respectively. Overall, tendency to be in STEMM professions was different across all classes, using both variables of STEMJOB and STEMJOB1, p < .001, and p < .05, respectively.

In 5-class solution, C5 showed the strongest tendency to be in STEMM professions using both variables of STEMJOB and STEMJOB1, means of .130, and .189, respectively. Overall, tendency to be in STEMM professions was different across all classes, using both variables of STEMJOB and STEMJOB1, p < .001, and p < .05, respectively.

In 6-class solution, C6 showed the strongest tendency to be in STEMM professions using both variables of STEMJOB and STEMJOB1, means of .130, and .188, respectively. Overall, tendency to be in STEMM professions was not different across all classes, using both variables of STEMJOB and STEMJOB1, p > .05, and p > .05, respectively. For STEMJOB, significant differences were found regarding pair-wise comparisons of C1 vs. C5, C3 vs. C6, C1 vs. C4, C1 vs. C6, C2 vs. C4, C2 vs. C6, and C5 vs. C6, all at the .05 significance level. For STEMJOB1, significant differences were found regarding pair-wise comparisons of C3 vs. C4, C3 vs. C6, C2 vs. C4, and C21 vs. C6, all at the .05 significance level.

In 7-class solution, C7 showed the strongest tendency to be in STEMM professions using both variables of STEMJOB and STEMJOB1, means of .130, and .185, respectively. Overall, tendency to be in STEMM professions was different across all classes, using both variables of STEMJOB and STEMJOB1, p < .001, and p < .05, respectively.

In 8-class solution, C6 showed the strongest tendency to be in STEMM professions using both variables of STEMJOB and STEMJOB1, means of .130, and .184, respectively. Overall, tendency to be in STEMM professions was different across all classes, using both variables of STEMJOB and STEMJOB1, p < .001, and p < .05, respectively.