Report on June 17, 2013

* Family Support:   
   We will create a set of new variables (G7PSPComp, G9PSPComp, G10PSPComp, G11PSPComp, G12PSPComp) which is a composite of the following variables,

“Parents expect me to do well in science” (AB19N, FB2L, HB2L, JA2L, LA2L)

“Parents think science important” (AB19R, FB2P, HB2P, JB2P, LA2P)

“Parents encourage science career” (AB19T, FB2R, HB2R, JA2R, LA2R)

G7PSPComp = Mean (AB19N, AB19R, AB19T)\*3

G9PSPComp = Mean (FB2L, FB2P, FB2R)\*3

G10PSPComp = Mean (HB2L, HB2P, HB2R)\*3

G11PSPComp = Mean (JA2L, JB2P, JA2R)\*3

G12PSPComp = Mean (LA2L, LA2P, LA2R)\*3

* Extracurricular Activities:

We will create a set of new variables (G7ExC, G8ExC, G9ExC, G10ExC, G11ExC, G12ExC) which is a composite of the following variables,

“In this school year I participated in computer club” (BB10M, DB1M, FB1M, HA1M, JA1M, LA1M)

“In this school year I participated in science club” (BB10K, DB1K, FB1K, HA1K, JA1K, LA1K)

“In this school year I visited science museum” (BB11J, DB1FF, FB1FF, HA1FF, JA1EE, LA1FF)

“In this school year I visited zoo” (BB11L, DB1HH, FB1HH, HA1HH, JA1FF, LA1GG)

“Last summer I visited science museum” (AB15J, CB1K, EB1K, GA1K, IA1K, KA1K)

“Last summer I visited zoo” (AB15L, CB1M, EB1M, GA1M, IA1M, KA1M)

“In this school year I entered science fair” (BB11E, DB1AA, FB1AA, HA1AA, JA1AA, LA1AA)

G7ExC = Mean (BB10M, BB10K, BB11J, BB11L, BB11E, AB15J, AB15L) \*7

G8ExC = Mean (DB1M, DB1K, DB1FF, DB1HH, DB1AA, CB1K, CB1M) \*7

G9ExC = Mean (FB1M, FB1K, FB1FF, FB1HH, FB1AA, EB1K, EB1M) \*7

G10ExC = Mean (HA1M, HA1K, HA1FF, HA1HH, HA1AA, GA1K, GA1M) \*7

G11ExC = Mean (JA1M, JA1K, JA1EE, JA1FF, JA1AA, IA1K, IA1M) \*7

G12ExC = Mean (LA1M, LA1K, LA1FF, LA1GG, LA1AA, KA1K, KA1M) \*7

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

g7exc | 3116 1.808087 1.46234 0 7

* Academic Self-concept:

We will create a set of new variables (G7ASCComp, G8ASCComp, G9ASCComp, G10ASCComp, G11ASCComp, G12ASCComp) which is a composite of the following variables,

“I like working on tough problems” (reverse coded) (AB37M, CB24N, EB25N, GA29N, IA34N, KA41N)

“I like to keep struggling with problems” (reverse coded) (AB37O, CB24P, EB25P, GA29P, IA34P, KA41P)

“I give up soon” (AB38B, CB26B, EB27B, GA31B, IA36B, KA43B)

“I try harder if I get bad grades” (reverse coded) (AB38H, CB26H, EB27H, GA31H, IA36H, KA43H)

“I do my best in school” (reverse coded) (AB38F, CB26F, EB27F, GA31F, IA36F, KA43F)

“I am able to do as well as others” (reverse coded) (AB37D, CB24D, EB25D, GA33L, IA38L, KA47L)

G7ASCComp = Mean (AB37M, AB37O, AB38B, AB38H, AB38F, AB37D)

G8ASCComp = Mean (CB24N, CB24P, CB26B, CB26H, CB26F, CB24D)

G9ASCComp = Mean (EB25N, EB25P, EB27B, EB27H, EB27F, EB25D)

G10ASCComp = Mean (GA29N, GA29P, GA31B, GA31H, GA31F, GA29D)

G11ASCComp = Mean (IA34N, IA34P, IA36B, IA36H, IA36F, IA34D)

G12ASCComp = Mean (KA41N, KA41P, KA43B, KA43H, KA43F, KA41D)

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

g7asccomp | 2764 2.747347 .4382061 1.333333 4.833333

* Science Self-concept:  
  We will create a set of new variables (G7SSCComp, G8SSCComp, G9SSCComp, G10SSCComp, G11SSCComp, G12SSCComp) which is a composite of the following variables,

“I enjoy science” (reverse coded) (AB39M, CB29A, EB30A, GA33A, IA38A, KA47A)

“I am good at science” (reverse coded) (AB39N, CB29B, EB30B, GA33B, IA38B, KA47B)

“I usually understand science” (reverse coded) (AB39O, CB29C, EB30C, GA33C, IA38C, KA47C)

“Science helps logical thinking” (reverse coded) (AB39U, CB29I, EB30I, GA33I, IA38I, KA47I)

“Science is useful in everyday problems” (reverse coded) (AB39T, CB29H, EB30H, GA33H, IA38H, KA47H)

“I need science for a good job” (reverse coded) (AB39W, CB29K, EB30K, GA33K, IA38K, KA47K)

“I will use science often as an adult” (reverse coded) (AB39X, CB29L, EB30L, GA33L, IA38L, KA47L)

G7SSCComp = Mean (AB39M, AB39N, AB39O, AB39U, AB39T, AB39W, AB39X)

G8SSCComp = Mean (CB29A, CB29B, CB29C, CB29I, CB29H, CB29K, CB29L)

G9SSCComp = Mean (EB30A, EB30B, EB30C, EB30I, EB30H, EB30K, EB30L)

G10SSCComp = Mean (GA33A, GA33B, GA33C, GA33I, GA33H, GA33K, GA33L)

G11SSCComp = Mean (IA38A, IA38B, IA38C, IA38I, IA38H, IA38K, IA38L)

G12SSCComp = Mean (KA47A, KA47B, KA47C, KA47I, KA47H, KA47K, KA47L)

Variable | Obs Mean Std. Dev. Min Max

-------------+--------------------------------------------------------

g7ssccomp | 2822 3.460261 .8029992 1 5

* School Science Experience:

We will create a set of new variables (G7TSPSubC, G8TSPSubC, G9TSPSubC, G10TSPSubC, G11TSPSubC, G12TSPSubC) which is a sub-composite of the following variables,

“Current science teacher expects best from me” (BB12B, DB2B, FB4B, HA4B, JA4B, LA4B)

“Current science teacher encourages extra work” (BB12C, DB2C, FB4C, HA4C, JA4C, LA4C)

“Current science teacher expects me to work hard” (BB12D, DB2D, FB4D, HA4D, JA4D, LA4D)

“Current science teacher expects completed homework” (BB12E, DB2E, FB4E, HA4E, JA4E, LA4E)

“Current science teacher encourages me in science” (BB12M, DB2M, FB4M, HA4K, JA4K, LA4K)

“Current science teacher encourages math and science career” (BB12N, DB2N, FB4N, HA4L, JA4L, LA4L)

G7TSPSubC = Mean (BB12B, BB12C, BB12D, BB12E, BB12M, BB12N) \*5

G8TSPSubC = Mean (DB2B, DB2C, DB2D, DB2E, DB2M, DB2N) \*5

G9TSPSubC = Mean (FB4B, FB4C, FB4D, FB4E, FB4M, FB4N) \*5

G10TSPSubC = Mean (HA4B, HA4C, HA4D, HA4E, HA4K, HA4L) \*5

G11TSPSubC = Mean (JA4B, JA4C, JA4D, JA4E, JA4K, JA4L) \*5

G12TSPSubC = Mean (LA4B, LA4C, LA4D, LA4E, LA4K, LA4L) \*5

We will create a set of new variables (G7SSEComp, G8SSEComp, G9SSEComp, G10SSEComp, G11SSEComp, G12SSEComp) which is a composite of the following variables,

“Newly created teacher science push variables” (G7TSPSubC, G8TSPSubC, G9TSPSubC, G10TSPSubC, G11TSPSubC, G12TSPSubC)

“In science class, I like subject” (reverse coded) (BBSCIC, DBSCIC, FBSCIC, HASCI1C, JASCI1C, LASCI1C)

“In science class, there is clarity of teachers” (reverse coded) (BBSCID, DBSCID, FBSCID, HASCI1D, JASCI1D, LASCI1D)

“In science class, it is of utility in my career” (reverse coded) (BBSCIF, DBSCIF, FBSCIF, HASCI1F, JASCI1F, LASCI1F)

G7SSEComp = Mean (G7TSPSubC, BBSCIC, BBSCID, BBSCIF)

G8SSEComp = Mean (G8TSPSubC, DBSCIC, DBSCID, DBSCIF)

G9SSEComp = Mean (G9TSPSubC, FBSCIC, FBSCID, FBSCIF)

G10SSEComp = Mean (G10TSPSubC, HASCI1C, HASCI1D, HASCI1F)

G11SSEComp = Mean (G11TSPSubC, JASCI1C, JASCI1D, JASCI1F)

G12SSEComp = Mean (G12TSPSubC, LASCI1C, LASCI1D, LASCI1F)

* Peer Support:   
   We will use the following variable  
  “Peer science push” (KSCPH7, KSCPH8, KSCPH9, KSCPH10, KSCPH11, KSCPH12)
* Mother’s and Father’s education:

Mother’s education variable (MOTHED) and Father’s education variable (FATHED) will be recoded, 1=”went to college or above” and 0=”education below college” to create new variables (MOTHED1, FATHED1)

* Parents’ occupation:

Parents’ occupation variable (POCI) will be recoded, 1=”STEM area” and 0=”Non-STEM area” to create a new variable (POCI1)

* STEM occupation:

Students’ occupation variable (RSTEMMA) will be recoded, 1=”STEMM or STEMM support”, 0=”Non-STEMM” to create a new variable (STEMMJOB1).

* Summary science scores

We will add variables of summary science achievement test scores for each time point (ASCIIRT, CSCIIRT, ESCIIRT, GSCIIRT, ISCIIRT, KSCIIRT)

* Number of science courses taken in high school

We will add a variable of the number of science courses taken in high school (NUMHSSCI)

* Gender:

Gender variable (GENDER) will be recoded, 1=”Female” and 0=”Male” to create a new variable (FEMALE)

* Ethnicity:

Ethnicity variable (RACETH) will be recoded, 1=”Minority” and 0=”Non-minority” to create a new variable (MINORITY).

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* Variations of six composites across six time points

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | |
|  | N | Minimum | Maximum | Mean | Std. Deviation |
| G7PSPComp | 3107 | .00 | 3.00 | 1.3070 | 1.04056 |
| G9PSPComp | 2315 | .00 | 3.00 | 1.3564 | 1.09785 |
| G10PSPComp | 2147 | .00 | 3.00 | 1.3484 | 1.10649 |
| G11PSPComp | 1783 | .00 | 3.00 | 1.3416 | 1.14763 |
| G12PSPComp | 2018 | .00 | 3.00 | 1.3974 | 1.23959 |
| G7ExC | 3116 | .00 | 7.00 | 1.9786 | 1.65901 |
| G8ExC | 2802 | .00 | 7.00 | 1.6406 | 1.54626 |
| G9ExC | 2539 | .00 | 7.00 | 1.2252 | 1.51714 |
| G10ExC | 2399 | .00 | 7.00 | 1.0005 | 1.39461 |
| G11ExC | 2157 | .00 | 7.00 | 1.0389 | 1.51172 |
| G12ExC | 1912 | .00 | 7.00 | 1.0224 | 1.41632 |
| G7ASCComp | 3081 | 1.00 | 5.00 | 2.7426 | .46852 |
| G8ASCComp | 2700 | 1.00 | 5.00 | 2.8260 | .43947 |
| G9ASCComp | 2588 | 1.00 | 5.00 | 2.7559 | .55577 |
| G10ASCComp | 2532 | 1.00 | 5.00 | 2.7525 | .55939 |
| G11ASCComp | 2359 | 1.00 | 5.00 | 2.6871 | .61564 |
| G12ASCComp | 1600 | 1.00 | 5.00 | 2.8790 | .41122 |
| G7SSCComp | 3061 | 1.00 | 5.00 | 3.4559 | .80811 |
| G8SSCComp | 2667 | 1.00 | 5.00 | 3.4085 | .85922 |
| G9SSCComp | 2339 | 1.00 | 5.00 | 3.3930 | .82147 |
| G10SSCComp | 2258 | 1.00 | 5.00 | 3.3698 | .81486 |
| G11SSCComp | 1976 | 1.00 | 5.00 | 3.3356 | .79247 |
| G12SSCComp | 1544 | 1.00 | 5.00 | 3.3403 | .79178 |
| G7SSEComp | 2560 | .00 | 5.00 | 3.5101 | .93113 |
| G8SSEComp | 2683 | .00 | 5.00 | 3.4668 | .96584 |
| G9SSEComp | 2347 | .00 | 5.00 | 3.4895 | .99532 |
| G10SSEComp | 2242 | .00 | 5.00 | 3.4334 | 1.00540 |
| G11SSEComp | 1692 | .00 | 5.00 | 3.5318 | .96527 |
| G12SSEComp | 1000 | .00 | 5.00 | 3.6085 | 1.00979 |
| PEER SCIENCE PUSH GRADE 7 | 3107 | 0 | 4 | 1.16 | 1.204 |
| PEER SCIENCE PUSH GRADE 8 | 2658 | 0 | 4 | .77 | 1.070 |
| PEER SCIENCE PUSH GRADE 9 | 2402 | 0 | 4 | .60 | .975 |
| PEER SCIENCE PUSH GRADE 10 | 2303 | 0 | 4 | .55 | .935 |
| PEER SCIENCE PUSH GRADE 11 | 2033 | 0 | 4 | .50 | .889 |
| PEER SCIENCE PUSH YEAR GRADE 12 | 1595 | 0 | 4 | .53 | .913 |
| Valid N (listwise) | 325 |  |  |  |  |

Academic self-concept composites (G7ASCComp, G8ASCComp, G9ASCComp, G10ASCComp, G11ASCComp, G12ASCComp) have its variation which is consistently lower compared to other composites throughout the grade levels

* Pearson's bivariate correlations among six items of academic self-concept composite across six time points

Grade7

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | AB37M | AB37O | AB38B | AB38H | AB38F | AB37D |
| AB37M | Pearson Correlation | 1 | .378\*\* | -.275\*\* | -.067\*\* | -.126\*\* | .171\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 2966 | 2920 | 2902 | 2922 | 2899 | 2912 |
| AB37O | Pearson Correlation | .378\*\* | 1 | -.220\*\* | -.108\*\* | -.158\*\* | .136\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 2920 | 3001 | 2938 | 2958 | 2932 | 2943 |
| AB38B | Pearson Correlation | -.275\*\* | -.220\*\* | 1 | .098\*\* | .202\*\* | -.097\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 2902 | 2938 | 3008 | 2994 | 2964 | 2938 |
| AB38H | Pearson Correlation | -.067\*\* | -.108\*\* | .098\*\* | 1 | .442\*\* | -.119\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 2922 | 2958 | 2994 | 3029 | 2990 | 2959 |
| AB38F | Pearson Correlation | -.126\*\* | -.158\*\* | .202\*\* | .442\*\* | 1 | -.149\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 2899 | 2932 | 2964 | 2990 | 3002 | 2933 |
| AB37D | Pearson Correlation | .171\*\* | .136\*\* | -.097\*\* | -.119\*\* | -.149\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 2912 | 2943 | 2938 | 2959 | 2933 | 3008 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

Grade8

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | CB24N | CB24P | CB26B | CB26H | CB26F | CB24D |
| CB24N | Pearson Correlation | 1 | .453\*\* | -.324\*\* | -.124\*\* | -.194\*\* | .219\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 2619 | 2593 | 2580 | 2592 | 2573 | 2573 |
| CB24P | Pearson Correlation | .453\*\* | 1 | -.293\*\* | -.126\*\* | -.189\*\* | .232\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 2593 | 2660 | 2621 | 2635 | 2617 | 2611 |
| CB26B | Pearson Correlation | -.324\*\* | -.293\*\* | 1 | .130\*\* | .183\*\* | -.158\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 2580 | 2621 | 2651 | 2646 | 2626 | 2597 |
| CB26H | Pearson Correlation | -.124\*\* | -.126\*\* | .130\*\* | 1 | .493\*\* | -.191\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 2592 | 2635 | 2646 | 2665 | 2640 | 2611 |
| CB26F | Pearson Correlation | -.194\*\* | -.189\*\* | .183\*\* | .493\*\* | 1 | -.216\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 2573 | 2617 | 2626 | 2640 | 2644 | 2592 |
| CB24D | Pearson Correlation | .219\*\* | .232\*\* | -.158\*\* | -.191\*\* | -.216\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 2573 | 2611 | 2597 | 2611 | 2592 | 2646 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

Grade9

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | EB25N | EB25P | EB27B | EB27H | EB27F | EB25D |
| EB25N | Pearson Correlation | 1 | .518\*\* | -.320\*\* | -.134\*\* | -.178\*\* | .237\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 2335 | 2312 | 2308 | 2313 | 2307 | 2307 |
| EB25P | Pearson Correlation | .518\*\* | 1 | -.294\*\* | -.115\*\* | -.147\*\* | .245\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 2312 | 2341 | 2313 | 2318 | 2312 | 2314 |
| EB27B | Pearson Correlation | -.320\*\* | -.294\*\* | 1 | .157\*\* | .221\*\* | -.170\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 2308 | 2313 | 2341 | 2332 | 2326 | 2310 |
| EB27H | Pearson Correlation | -.134\*\* | -.115\*\* | .157\*\* | 1 | .525\*\* | -.222\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 2313 | 2318 | 2332 | 2560 | 2543 | 2317 |
| EB27F | Pearson Correlation | -.178\*\* | -.147\*\* | .221\*\* | .525\*\* | 1 | -.218\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 2307 | 2312 | 2326 | 2543 | 2552 | 2309 |
| EB25D | Pearson Correlation | .237\*\* | .245\*\* | -.170\*\* | -.222\*\* | -.218\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 2307 | 2314 | 2310 | 2317 | 2309 | 2344 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

Grade10

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | GA29N | GA29P | GA31B | GA31H | GA31F | GA29D |
| GA29N | Pearson Correlation | 1 | .536\*\* | -.406\*\* | -.153\*\* | -.187\*\* | .250\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 2215 | 2204 | 2188 | 2201 | 2186 | 2185 |
| GA29P | Pearson Correlation | .536\*\* | 1 | -.364\*\* | -.141\*\* | -.162\*\* | .224\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 2204 | 2251 | 2222 | 2236 | 2220 | 2222 |
| GA31B | Pearson Correlation | -.406\*\* | -.364\*\* | 1 | .185\*\* | .225\*\* | -.220\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 2188 | 2222 | 2265 | 2262 | 2247 | 2205 |
| GA31H | Pearson Correlation | -.153\*\* | -.141\*\* | .185\*\* | 1 | .560\*\* | -.261\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 2201 | 2236 | 2262 | 2515 | 2497 | 2218 |
| GA31F | Pearson Correlation | -.187\*\* | -.162\*\* | .225\*\* | .560\*\* | 1 | -.292\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 2186 | 2220 | 2247 | 2497 | 2499 | 2203 |
| GA29D | Pearson Correlation | .250\*\* | .224\*\* | -.220\*\* | -.261\*\* | -.292\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 2185 | 2222 | 2205 | 2218 | 2203 | 2234 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

Grade11

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | IA34N | IA34P | IA36B | IA36H | IA36F | IA34D |
| IA34N | Pearson Correlation | 1 | .566\*\* | -.409\*\* | -.109\*\* | -.186\*\* | .230\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 1978 | 1968 | 1956 | 1964 | 1947 | 1960 |
| IA34P | Pearson Correlation | .566\*\* | 1 | -.398\*\* | -.117\*\* | -.165\*\* | .178\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 1968 | 1991 | 1969 | 1978 | 1961 | 1972 |
| IA36B | Pearson Correlation | -.409\*\* | -.398\*\* | 1 | .174\*\* | .209\*\* | -.219\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 1956 | 1969 | 1993 | 1989 | 1972 | 1962 |
| IA36H | Pearson Correlation | -.109\*\* | -.117\*\* | .174\*\* | 1 | .561\*\* | -.226\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 1964 | 1978 | 1989 | 2342 | 2322 | 1971 |
| IA36F | Pearson Correlation | -.186\*\* | -.165\*\* | .209\*\* | .561\*\* | 1 | -.278\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 1947 | 1961 | 1972 | 2322 | 2325 | 1954 |
| IA34D | Pearson Correlation | .230\*\* | .178\*\* | -.219\*\* | -.226\*\* | -.278\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 1960 | 1972 | 1962 | 1971 | 1954 | 1988 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

Grade12

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Correlations** | | | | | | | |
|  | | KA41N | KA41P | KA43B | KA43H | KA43F | KA41D |
| KA41N | Pearson Correlation | 1 | .551\*\* | -.375\*\* | -.117\*\* | -.149\*\* | .240\*\* |
| Sig. (2-tailed) |  | .000 | .000 | .000 | .000 | .000 |
| N | 1558 | 1553 | 1531 | 1533 | 1536 | 1544 |
| KA41P | Pearson Correlation | .551\*\* | 1 | -.361\*\* | -.108\*\* | -.165\*\* | .186\*\* |
| Sig. (2-tailed) | .000 |  | .000 | .000 | .000 | .000 |
| N | 1553 | 1570 | 1543 | 1545 | 1548 | 1555 |
| KA43B | Pearson Correlation | -.375\*\* | -.361\*\* | 1 | .246\*\* | .283\*\* | -.266\*\* |
| Sig. (2-tailed) | .000 | .000 |  | .000 | .000 | .000 |
| N | 1531 | 1543 | 1571 | 1565 | 1570 | 1534 |
| KA43H | Pearson Correlation | -.117\*\* | -.108\*\* | .246\*\* | 1 | .558\*\* | -.279\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 |  | .000 | .000 |
| N | 1533 | 1545 | 1565 | 1572 | 1571 | 1537 |
| KA43F | Pearson Correlation | -.149\*\* | -.165\*\* | .283\*\* | .558\*\* | 1 | -.264\*\* |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 |  | .000 |
| N | 1536 | 1548 | 1570 | 1571 | 1577 | 1539 |
| KA41D | Pearson Correlation | .240\*\* | .186\*\* | -.266\*\* | -.279\*\* | -.264\*\* | 1 |
| Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 |  |
| N | 1544 | 1555 | 1534 | 1537 | 1539 | 1560 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | |

6 bivariate correlations out of 15 possible correlations show negative relations throughout the grade levels

* Factor analysis of academic self-concept composite

|  |  |  |
| --- | --- | --- |
| **Communalities** | | |
|  | Initial | Extraction |
| LIKE WORKING ON TOUGH PROBLEMS | 1.000 | .630 |
| LIKE TO KEEP STRUGGLING W/ PROBLEMS | 1.000 | .539 |
| GIVE UP WHEN DON'T UNDERSTAND | 1.000 | .380 |
| TRY HARDER IF GET BAD GRADES | 1.000 | .717 |
| DO MY BEST IN SCHOOL | 1.000 | .701 |
| ABLE TO DO THINGS AS WELL AS OTHERS | 1.000 | .184 |
| Extraction Method: Principal Component Analysis. | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Total Variance Explained** | | | | | | |
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.915 | 31.921 | 31.921 | 1.915 | 31.921 | 31.921 |
| 2 | 1.237 | 20.610 | 52.530 | 1.237 | 20.610 | 52.530 |
| 3 | .914 | 15.234 | 67.765 |  |  |  |
| 4 | .788 | 13.133 | 80.898 |  |  |  |
| 5 | .601 | 10.017 | 90.915 |  |  |  |
| 6 | .545 | 9.085 | 100.000 |  |  |  |
| Extraction Method: Principal Component Analysis. | | | | | | |

|  |  |  |
| --- | --- | --- |
| **Component Matrixa** | | |
|  | Component | |
| 1 | 2 |
| LIKE WORKING ON TOUGH PROBLEMS | -.633 | .480 |
| LIKE TO KEEP STRUGGLING W/ PROBLEMS | -.614 | .403 |
| GIVE UP WHEN DON'T UNDERSTAND | .570 | -.234 |
| TRY HARDER IF GET BAD GRADES | .510 | .676 |
| DO MY BEST IN SCHOOL | .607 | .577 |
| ABLE TO DO THINGS AS WELL AS OTHERS | -.428 | .025 |
| Extraction Method: Principal Component Analysis. | | |
| a. 2 components extracted. | | |