CHIP690 mProject8 Yannick Apedo

In this project, we used two techniques regarding factor analysis to determine what factor structures emerge in the data. One of the techniques include parallel analysis, which helps to determine the number of factors to retain in a factor analysis. In this case in particular, the analysis determines the number of factors to retain in a factor analysis. The other technique is principle component analysis, or PCA. This technique helps to simplify our data. From the data table, we can see that the analysis indicated around 18-19% of factors.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Total Variance Explained** | | | | | | |
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 8.194 | 18.623 | 18.623 | 8.194 | 18.623 | 18.623 |
| 2 | 5.154 | 11.713 | 30.335 | 5.154 | 11.713 | 30.335 |
| 3 | 2.590 | 5.887 | 36.223 | 2.590 | 5.887 | 36.223 |
| 4 | 2.073 | 4.711 | 40.934 | 2.073 | 4.711 | 40.934 |
| 5 | 1.648 | 3.744 | 44.678 | 1.648 | 3.744 | 44.678 |
| 6 | 1.415 | 3.216 | 47.895 | 1.415 | 3.216 | 47.895 |
| 7 | 1.291 | 2.933 | 50.828 | 1.291 | 2.933 | 50.828 |
| 8 | 1.221 | 2.775 | 53.604 | 1.221 | 2.775 | 53.604 |
| 9 | 1.110 | 2.522 | 56.125 | 1.110 | 2.522 | 56.125 |
| 10 | 1.078 | 2.449 | 58.575 | 1.078 | 2.449 | 58.575 |
| 11 | 1.032 | 2.345 | 60.919 | 1.032 | 2.345 | 60.919 |
| 12 | .951 | 2.162 | 63.081 |  |  |  |
| 13 | .942 | 2.140 | 65.221 |  |  |  |
| 14 | .882 | 2.004 | 67.225 |  |  |  |
| 15 | .863 | 1.962 | 69.188 |  |  |  |
| 16 | .828 | 1.883 | 71.070 |  |  |  |
| 17 | .770 | 1.751 | 72.821 |  |  |  |
| 18 | .750 | 1.704 | 74.525 |  |  |  |
| 19 | .737 | 1.675 | 76.200 |  |  |  |
| 20 | .690 | 1.569 | 77.769 |  |  |  |
| 21 | .652 | 1.481 | 79.250 |  |  |  |
| 22 | .646 | 1.468 | 80.718 |  |  |  |
| 23 | .626 | 1.423 | 82.141 |  |  |  |
| 24 | .587 | 1.335 | 83.476 |  |  |  |
| 25 | .571 | 1.298 | 84.774 |  |  |  |
| 26 | .550 | 1.249 | 86.023 |  |  |  |
| 27 | .513 | 1.166 | 87.189 |  |  |  |
| 28 | .501 | 1.138 | 88.327 |  |  |  |
| 29 | .474 | 1.078 | 89.405 |  |  |  |
| 30 | .440 | 1.001 | 90.406 |  |  |  |
| 31 | .435 | .990 | 91.395 |  |  |  |
| 32 | .392 | .890 | 92.286 |  |  |  |
| 33 | .368 | .835 | 93.121 |  |  |  |
| 34 | .366 | .831 | 93.952 |  |  |  |
| 35 | .350 | .795 | 94.747 |  |  |  |
| 36 | .330 | .751 | 95.498 |  |  |  |
| 37 | .319 | .725 | 96.223 |  |  |  |
| 38 | .302 | .685 | 96.909 |  |  |  |
| 39 | .287 | .653 | 97.562 |  |  |  |
| 40 | .260 | .590 | 98.152 |  |  |  |
| 41 | .250 | .568 | 98.720 |  |  |  |
| 42 | .230 | .524 | 99.244 |  |  |  |
| 43 | .207 | .470 | 99.713 |  |  |  |
| 44 | .126 | .287 | 100.000 |  |  |  |
| Extraction Method: Principal Component Analysis. | | | | | | |

Next, we will run an exploratory factor analysis specifying 5 factors. From the pattern matrix, we can find the partial loadings for each item with each of the first five factors. Factor 1 might be considered “masculine”, while factor 2 “feminine”. Meanwhile, factors 3, 4, and 5 could represent social desirability according to the 44 iteams.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pattern Matrixa** | | | | | |
|  | Factor | | | | |
| 1 | 2 | 3 | 4 | 5 |
| strong personality | .812 | -.080 | -.009 | -.097 | -.058 |
| assertive | .749 | -.111 | .037 | -.019 | -.075 |
| forceful | .703 | -.265 | .038 | -.058 | .058 |
| dominant | .641 | -.314 | -.050 | -.006 | .166 |
| willing to take a stand | .586 | .064 | .059 | .133 | -.034 |
| defend beliefs | .458 | .015 | .145 | -.021 | -.045 |
| individualistic | .452 | .081 | -.050 | .198 | -.113 |
| competitive | .448 | .160 | -.186 | -.083 | .138 |
| willing to take risks | .420 | .140 | -.026 | .046 | .057 |
| ambitious | .370 | .199 | -.129 | .125 | .033 |
| shy | -.351 | -.047 | .016 | .011 | -.093 |
| analyt | .277 | -.079 | .192 | .119 | -.038 |
| athletic | .264 | .250 | -.227 | -.031 | .061 |
| warm | .089 | .662 | .192 | -.162 | .022 |
| happy | .021 | .662 | -.163 | .118 | -.024 |
| tender | .096 | .659 | .131 | -.150 | -.046 |
| gentle | -.006 | .632 | .165 | -.077 | -.063 |
| cheerful | .078 | .582 | -.137 | .104 | .010 |
| affectionate | .325 | .469 | .112 | -.306 | .027 |
| soft spoken | -.388 | .450 | .004 | .192 | -.036 |
| moody | .212 | -.374 | .173 | -.312 | -.115 |
| loyal | .181 | .350 | .176 | -.047 | -.030 |
| feminine | -.046 | .347 | .039 | .118 | .061 |
| yielding | -.234 | .343 | .037 | .034 | .039 |
| love children | -.008 | .323 | .062 | -.107 | .008 |
| masculin | .295 | -.316 | -.011 | -.038 | .106 |
| helpful | .181 | .293 | .117 | .138 | .095 |
| use foul language | -.033 | .160 | -.027 | .062 | -.055 |
| compassionate | -.017 | .007 | .845 | .028 | -.001 |
| undstand | -.085 | -.002 | .802 | .123 | .013 |
| sensitiv | -.006 | -.099 | .755 | .045 | -.010 |
| sympathy | -.096 | -.002 | .693 | -.026 | .009 |
| eager to soothe hurt feelings | -.025 | .209 | .493 | -.062 | .074 |
| truthful | .133 | .121 | .222 | .132 | -.101 |
| self sufficient | .226 | .059 | .046 | .719 | -.015 |
| independent | .366 | -.026 | -.015 | .554 | -.065 |
| self reliant | .258 | .133 | -.025 | .539 | -.078 |
| gullible | -.024 | .147 | .053 | -.428 | .114 |
| conscientious | .028 | .185 | .197 | .407 | .053 |
| childlik | .205 | -.030 | -.115 | -.397 | -.139 |
| makes decisions easily | .285 | .080 | .023 | .370 | .138 |
| flatter | .270 | .279 | -.091 | -.324 | -.069 |
| act as a leader | .323 | -.041 | -.005 | -.003 | .832 |
| leadership ability | .441 | -.022 | .070 | .075 | .534 |
| Extraction Method: Maximum Likelihood.  Rotation Method: Promax with Kaiser Normalization. | | | | | |
| a. Rotation converged in 9 iterations. | | | | | |