bMap Instrument Development Overview
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The bMap instrument was developed over the course of the last 2 years. The survey was created by the bMaps team and inspired by the written works of the [1]original creators of the structural dynamics model. The initial survey items were submitted to inter-rater reliability testing. Inter-raters all had experience with structural dynamics and were in 89% agreement. Items not in agreement were removed.

The revised scale was tested on a dataset of 600 using Qualtrics panels. Multiple regression analysis and IRT testing found three distinct levels of the structural dynamics model: action propensities, communication domains and operating systems and is the first time the model was proven statistically. Due to the IRT testing 3 items were removed. Due to the inability to attain precise validity and reliability testing at the item level because the survey designed with ipsative scales, the instrument was then converted for use with a Likert scale.

The second round of testing resulted in sample size of 266 participants garnered from Qualtrics Panels. The results of this testing revealed strong internal reliability with alphas all above .7. Revisions were made to eliminate those items that had factor loadings below .4. and cross loadings with MI index of =>20. This revised scale was submitted to a third data collection using Qualtrics Panels resulting in a sample size of 257 on July 6, of 2020. After analysis 8 scenarios and their indicators were deleted, 11 indicators were modified, two scenarios were modified and kept as test scenarios.

Internal Reliability Testing on the Final Survey
Table 1 summarizes the descriptive information and Cronbach's Alpha of each scale in the action propensities. All values are as high as .9, which indicates excellent internal consistency of items in all four constructed scales.

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[1] Kantor, D. & Lehr, W. (1975) *Inside the Family: Toward a Theory of Family Process*, Jossey-Bass, San Francisco, CA; Kantor, D. (1999) *My Lover, Myself: Self-Discovery Through Relationship*, Riverhead Books, NY, NY; Kantor, D. (2012) *Reading the Room: Group Dynamics for Coaches and Leaders*, Wiley & Sons, Inc., San Francisco, CA.

Table 1. Summary of Descriptive Information and Reliabilities for Action Propensities

Scale	Alpha	M	SD
Move	.91	82.16	11.79
Follow	.91	83.11	11.66
Bystand	.90	80.38	11.02
Oppose	.90	77.00	13.28

Table 2 summarizes the descriptive information and Cronbach's Alpha of each scale in the operating systems. All values are around .9, which indicates excellent internal consistency of items in all three constructed subscales.

Table 2. Summary of Descriptive Information and Reliabilities for Operating Systems

Scale	Alpha	M	SD
Open	.92	99.68	15.33
Closed	.89	103.90	13.31
Random	.93	105.81	15.73

Table 3 summarizes the descriptive information and Cronbach's Alpha of each scale in communication domains. According to rules of thumb provided by Gorge and Mallery (2013), the subscales have acceptable, good, and good internal consistency respectively.

Table 3. Summary of Descriptive Information and Reliabilities for Communicaiton Domains

Scale	Alpha	M	SD
Power	.76	86.17	8.00
Meaning	.84	90.09	10.14
Affect	.87	93.39	11.78

Key to the success of the instrument is the reliability of a behavioral indicator loading onto its latent variable, i.e., a behavior as represented by a survey item that describes a

Move should load on to the concept of the move variable along with all the other move indicators.

The rule of thumb is only factors loading at .32 and above are kept.

Loadings >.71 (50% overlapping) = Excellent
Loadings >.63 (40% overlapping) = very good
Loadings >.55 (30% overlapping variance) = good,
Loadings >.45 (20% overlapping variance) = fair
Loadings >.32 (10% overlapping variance) = poor

"Choice of cutoff for size and loading to be interpreted is a matter of researcher preference. ….size of loadings is influenced by homogeneity of scores in the sample. If this is suspected, interpretation of the lower loadings is warranted. That is, if the sample produces similar scores on observed variables, a lower cutoff is used for interpretation of factors.." [2](Tabachnick & Fidell, 2006, p. 649)

The threshold of equal to or greater than .40, fair overlapping with 20% variance explained, with no cross loadings was used as the criteria to keep an item. Modification Indices were also examined. Indicators with cross loadings with a Modification Index of great than or equal to 20 were examined and modified or in the case where they had multiple cross loadings and higher than 20 MI were deleted. The remaining items all had indicators above .5 with a median of .7 representing an excellent relationship between the exogenous and latent variables.

The bMaps instrument, due to its strong internal reliability, internal consistency, and strong relationship between the exogenous and endogenous variables allows for a high level of confidence in its ability to describe a persons, low, medium and high stakes structural dynamics profile.

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[2] Tabachnick, B., & Fidell, L. (2006). *Using Multivariate Statistics* (Third Edition ed.). Northridge, CA: Harper Collins.