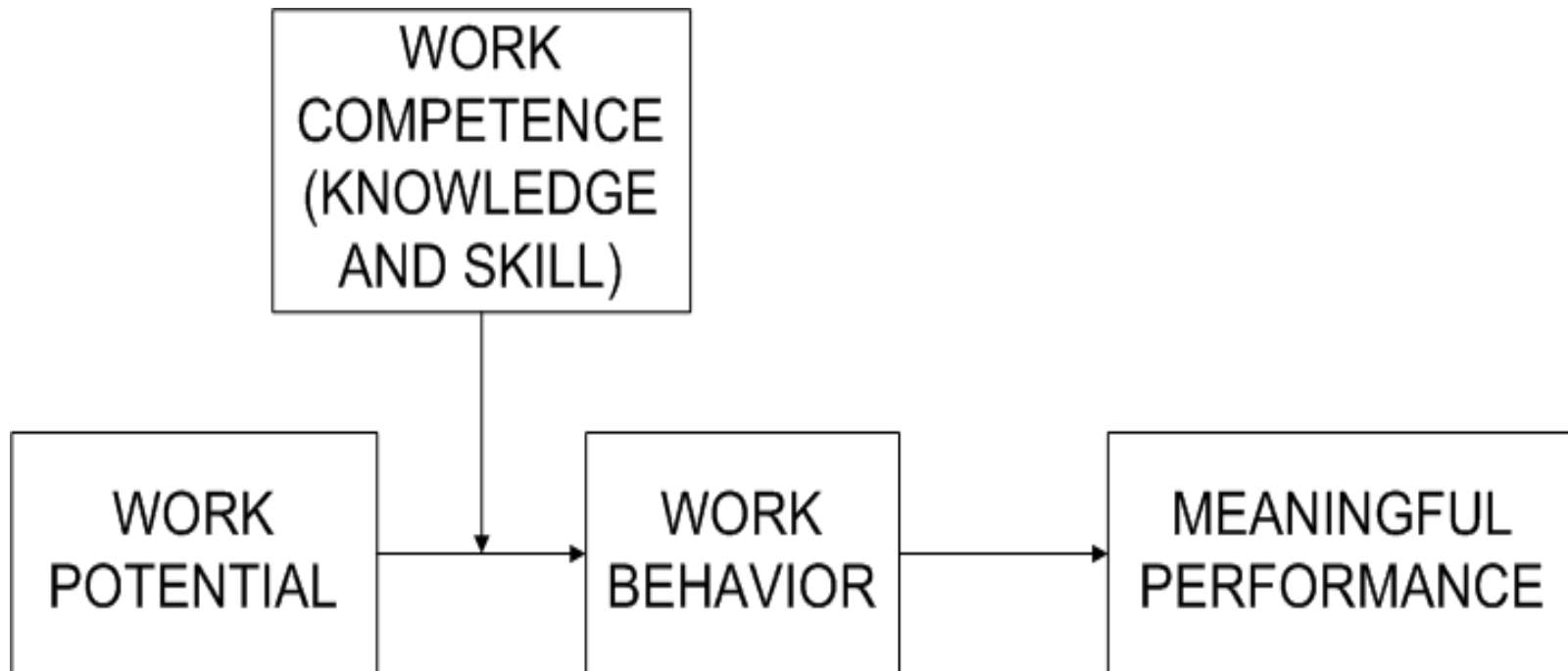# THE MODEL OF INTEGRATED WORK POTENTIALS AND THE WORK COMPETENCE AS A PREDICTOR FOR MEANINGFUL PERFORMANCE USING PATH ANALYSIS WITH MODERATING VARIABLE
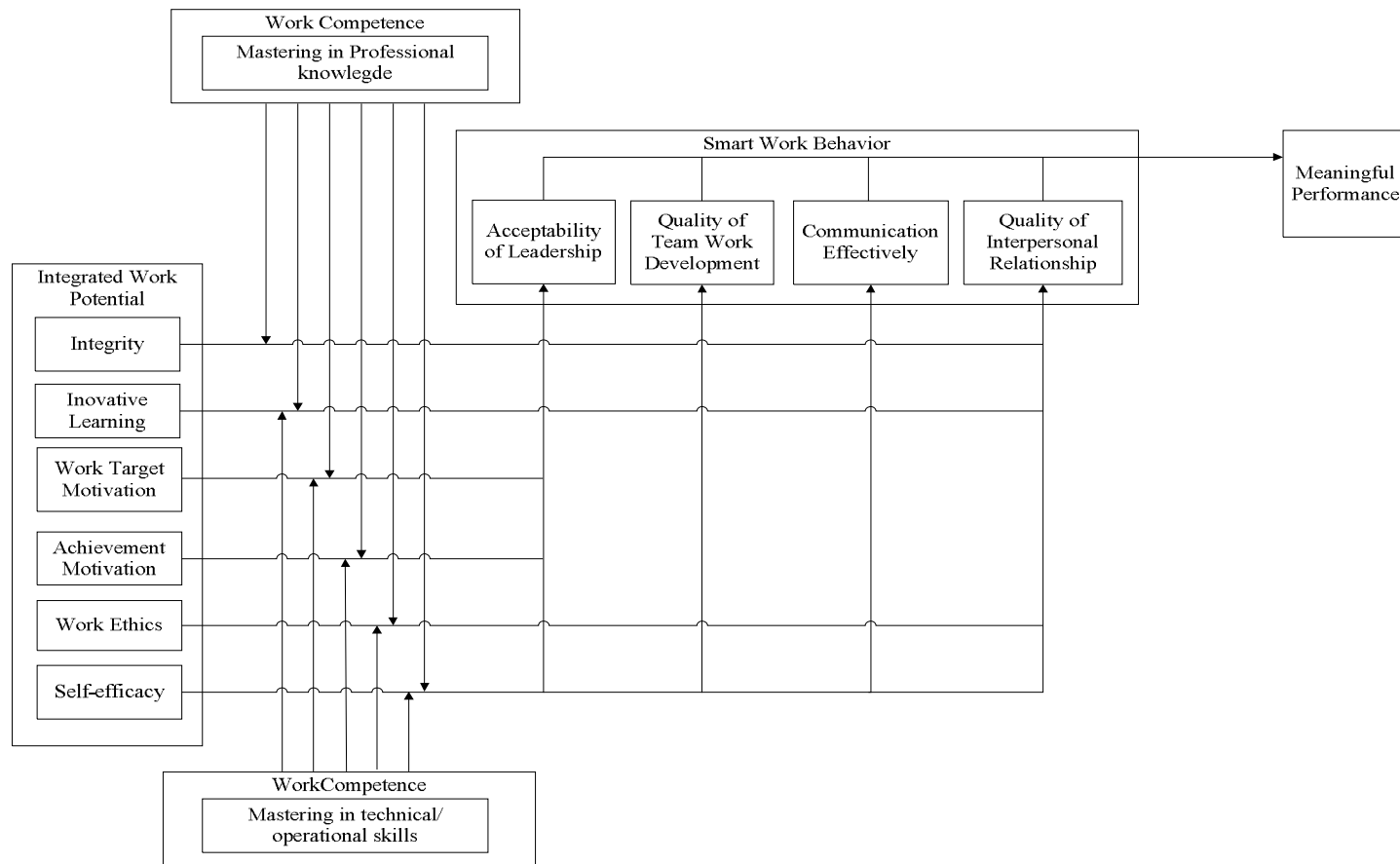
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BACKGROUND

RESEARCH MODEL

METHODS

- Path analysis represents an early attempt at dealing with causal relationships

- Developed by SewallWright in the 1930's

- Currently, causal analysis is done using structural equation modelling

- Path analysis is useful ini ilustrating a number of the issues involved in causal analysis

DEFINITIONS

- Exogenous variable – a variable whose causes are outside of the model

- Endogenous variable – a variable whose causes are inside the model

- Recursive model – a causal model that is unidirectional (one-way causal flow). It has no feedback loops nor any reciprocal effect. In a recurcive model, a variable cannot be both cause and effect at the same time

- Nonrecursive model – a causal model with feedback loops and/or reciprocal effects

- Path coefficient – standardized regression coefficient predicting one variable from another

ASSUMPTIONS

- Relation among models are linear, additive, and causal. Curvilinear, multiplicative, or interaction relations are excluded

- Residual are uncorrelated with all other variables and residuals in the model

- There is one-way causal flow

- The variable are measured on an interval scale

MEDIATING VARIABLES

A mediating variables is a variable that describes how rather than when effect will occur by accounting for the relationship between the independent and dependent variable. A mediating relationship is one in which the path relating X to Z is mediated by a third variable (Y)
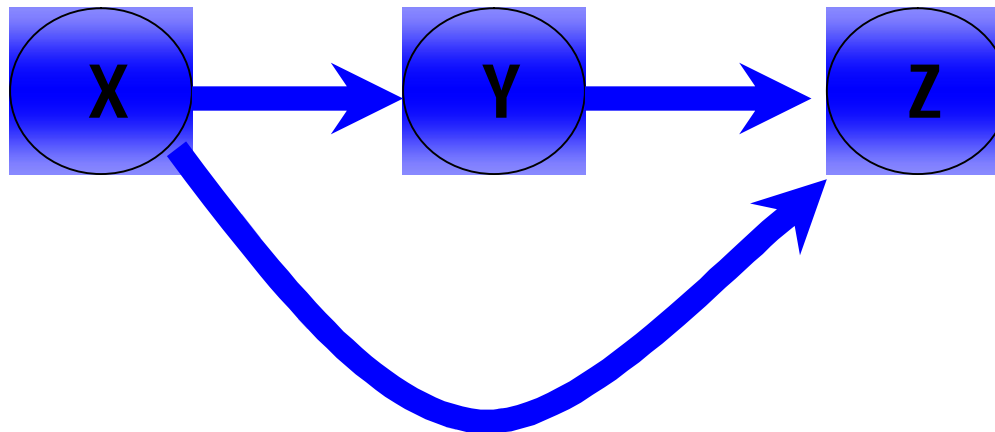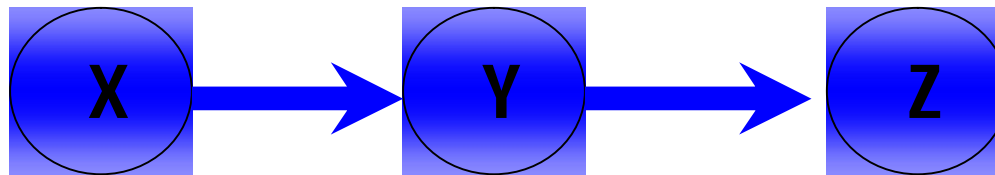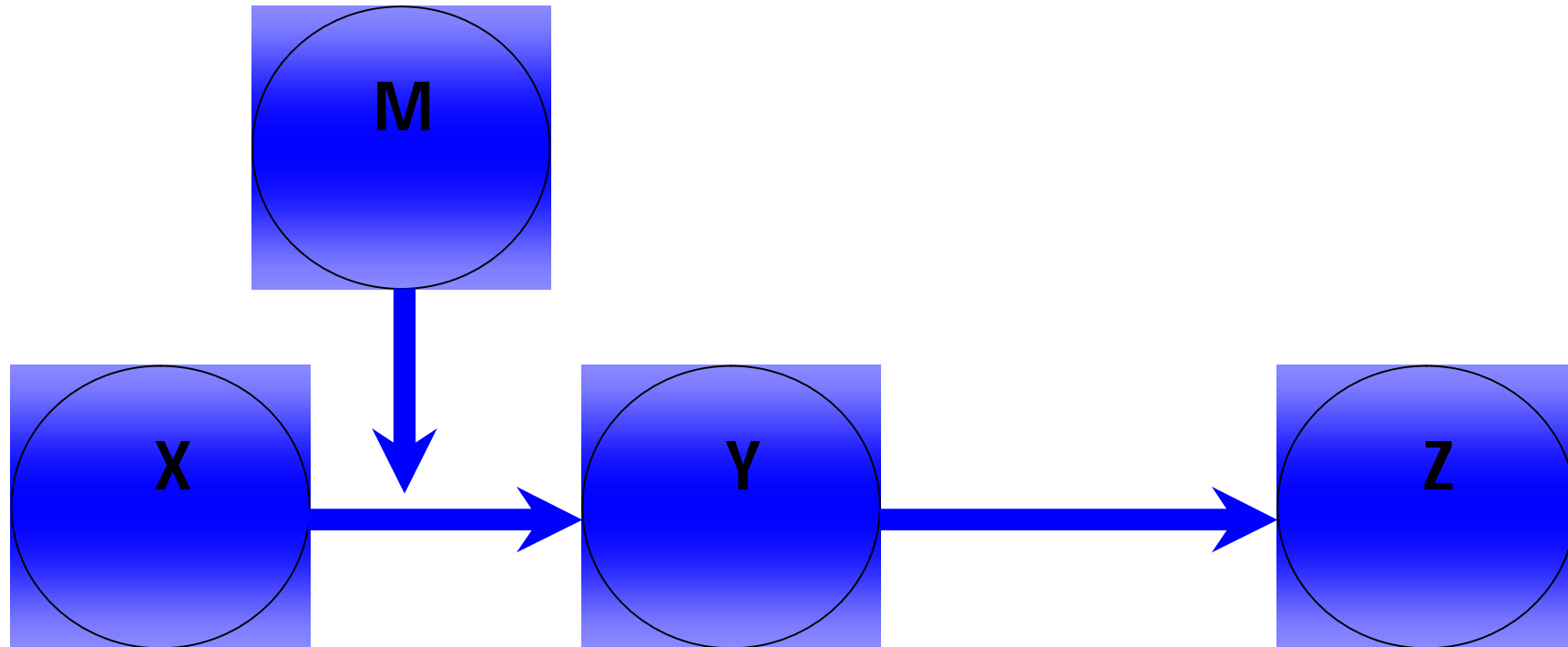
MODERATING VARIABLES

A moderating variable is variable that affects the direction and/or strength of the relation between dependent and independent variables. Specifically within a correlational analysis framework, a moderator is a third variable that affects the zero-order correlation between two other variables. (Baron and Kenny, 1986: p. 1174)
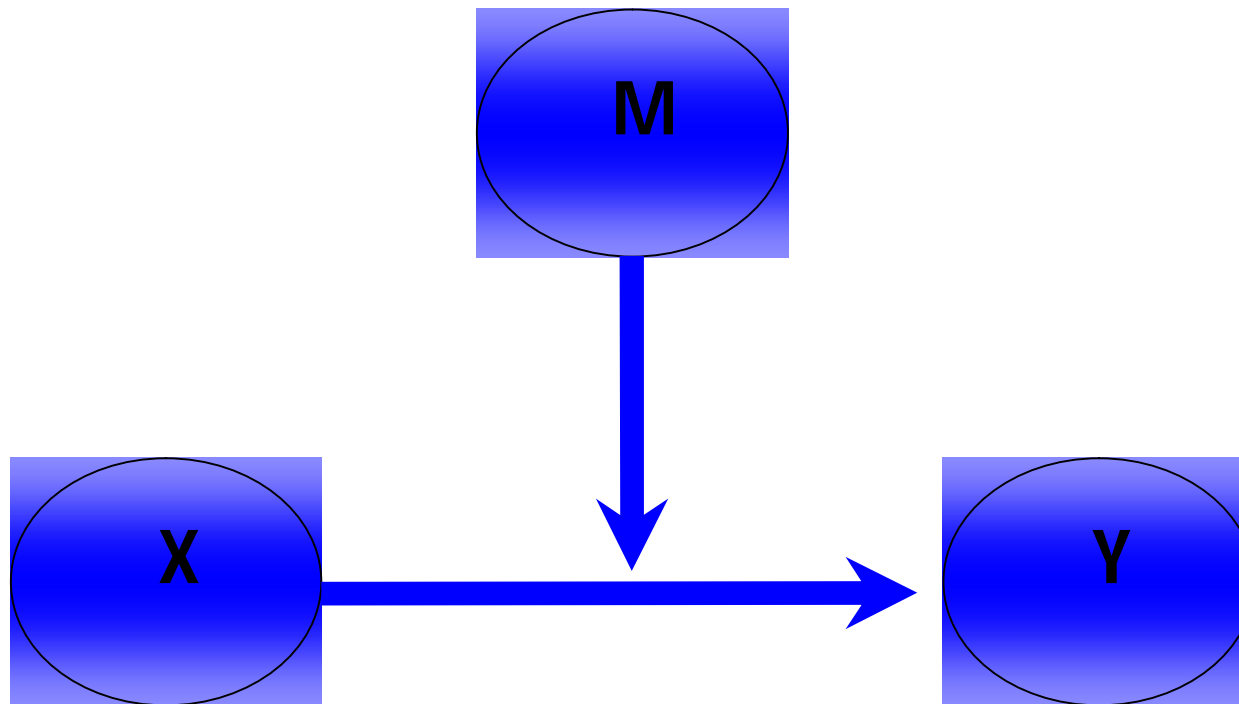
Piecemeal approach (1)

- To combine moderation and mediation involves analyzing moderation and mediation in piecemeal fashion and interpreting their results jointly.

- With this approach, moderation is usually tested with analysis of variance (ANOVA) or regression analysis, in which the dependent variable Y is regressed on the independent variable X, the moderator variable M, and their product XM, as follows:

$$Y = b_1X + b_2M + b_3XM + e$$

Piecemeal approach (2)

- Mediation is tested separately, typically with the causal steps procedure (Baron & Kenny, 1986), in which there relationships among X, Z, and the mediator variable Y are analyzed as follows:
  - (a) Z is regressed on X,
  - (b) Y is regressed on X,
  - (c) Z is regressed on both X and Y.
  - These regression equations can be written as follows:

$$Z = aX + e_1$$
$$Y = bX + e_2$$
$$Z = c_1X + c_2Y + e_3$$

PATH EQUATION

Equation for mediating variables:

$Z = a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + e_1$

$Y = b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e_2$

$Z = c_1X_1 + c_2X_2 + c_3X_3 + c_4X_4 + c_5X_5 + c_6X_6 + c_7Y_1 + c_8Y_2 + c_9Y_3 + c_{10}Y_4 + e_3$

Equation for moderating variables:

$Y_1 = d_{11}X_1 + d_{12}X_2 + d_{13}X_3 + d_{14}X_4 + d_{15}X_5 + d_{16}X_6 + d_{17}M_1 + d_{18}M_1 + d_{19}X_1M_1 + d_{110}X_2M_1 + d_{111}X_3M_1 + d_{112}X_4M_1 + d_{113}X_5M_1 + d_{114}X_6M_1 + d_{115}X_2M_2 + d_{116}X_3M_2 + d_{117}X_4M_2 + d_{118}X_5M_2 + d_{119}X_6M_2 + e_1$

$Y2 = d_{21}X_1 + d_{22}X_2 + d_{23}X_5 + d_{24}X_6 + d_{25}M_1 + d_{26}M_1 + d_{27}X_1M_1 + d_{28}X_2M_1 + d_{29}X_5M_1 + d_{210}X_6M_1 + d_{211}X_2M_2 + d_{212}X_5M_2 + d_{213}X_6M_2 + e_2$

$Y3 = d_{31}X_1 + d_{32}X_2 + d_{33}X_5 + d_{34}X_6 + d_{35}M_1 + d_{36}M_1 + d_{27}X_1M_1 + d_{38}X_2M_1 + d_{39}X_5M_1 + d_{310}X_6M_1 + d_{311}X_2M_2 + d_{312}X_5M_2 + d_{313}X_6M_2 + e_3$

$Y4 = d_{41}X_1 + d_{42}X_2 + d_{43}X_5 + d_{44}X_6 + d_{45}M_1 + d_{46}M_1 + d_{47}X_1M_1 + d_{48}X_2M_1 + d_{49}X_5M_1 + d_{410}X_6M_1 + d_{411}X_2M_2 + d_{412}X_5M_2 + d_{413}X_6M_2 + e_3$

RESULT

Independent Variable	Path Coefficient	t	p	Sig
Acceptability of leadership	0.211	3.948	0.000	***
Quality of team-work development	0.393	7.781	0.000	***
Quality of interpersonal relationship	0.178	3.675	0.000	***
$R^2 = 0.390$ F = 68.863	P = 0.000	***		

***: $p < 0.01$

RESULT

Independent Variable	Path Coefficient	t	p	Sig
Work Competence	0.292	5.508	0.000	***
Work ethics	1.052	3.467	0.000	***
Work target motivation	-0.902	-3.992	0.000	***
Work ethics X mastering in professional technical/operational skills	-1.562	-3.364	0.001	***
Innovative Learning Spirit X mastering in professional knowledge	0.250	4.514	0.000	***
Work target motivationX mastering in professional knowledge and technical/operational skills	1.582	3.916	0.000	***
$R^2 = 0.316$ F = 24.643 P = 0.000 ***				

***: $p<0.01$

** : $p<0.05$

RESULT

Independent Variable	Path Coefficient	t	p	Sig
Self Efficacy	0.207	3.690	0.000	***
Integrity	-0.114	-2.241	0.026	**
Work Ethics X mastering in professional technical/operational	0.151	2.780	0.006	***
Innovative Learning Spirit X mastering in professional knowledge	0.296	5.098	0.000	***
$R^2 = 0.246$ F = 26.285 P = 0.000 ***				

***: $p<0.01$
** : $p<0.05$

CONCLUSION

- Path analysis with moderating variables can be used for modeling integrated work potentials and the work competence as a predictor for meaningful performance in service companies in Indonesia.

Limitation in piecemeal approach

- The approach does not reveal which of the paths relating X, M, and Y vary as a function of Z.

- Second, most studies that apply the piecemeal approach use the causal steps procedure to assess mediation (Baron & Kenny, 1986), which has several limitations of its own.

- Another limitation of the causal steps procedure is that it does not directly test the mediated effect to X on Z (MacKinnon et al., 2002).