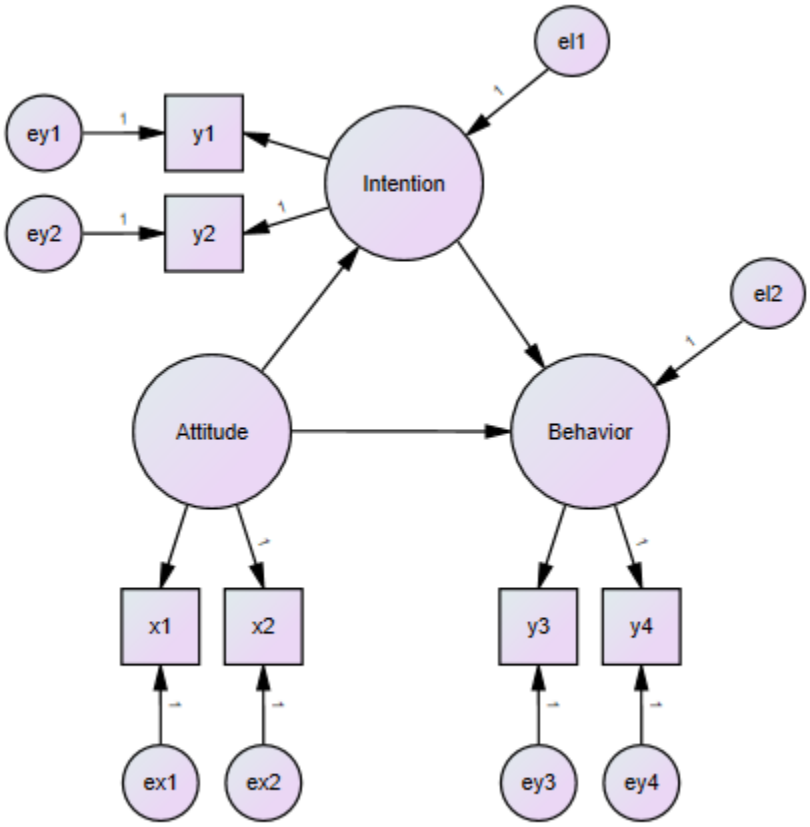
Assignment 6

1. Here is our original structured equation model:



After estimating the parameters, we got the following result regarding the model fit:

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	15
Degrees of freedom (21 - 15):	6

Result (Default model)

Minimum was achieved
Chi-square = 12.775
Degrees of freedom = 6
Probability level = .047

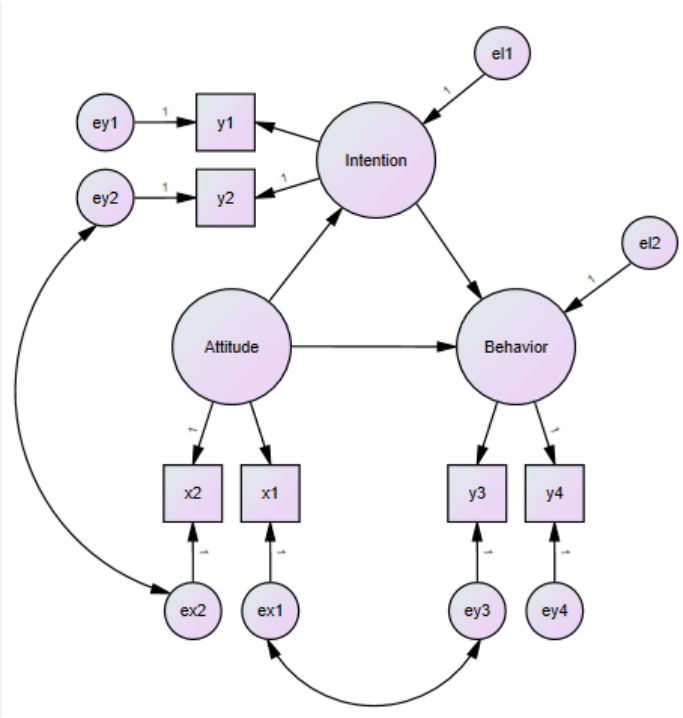
Other evaluation metrics:
- CFI: 0.992
- SRMR: 0.0198
- RMSEA: 0.048

We can see that although the above metrics suggest that the model is reasonably accurate, the **probability level**, which we want to be non-significant, turned out to be significant (less than 0.05). So we might want to modify the measurement model.

Here are the generated modification indices:

			M.I.	Par Change
ex1	<-->	ey3	4.484	.062
ey2	<-->	ex2	4.109	-.054

So, we try to change our measurement model accordingly:



We got the following results after changing our measurement model:

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	21
Number of distinct parameters to be estimated:	17
Degrees of freedom (21 - 17):	4

Result (Default model)

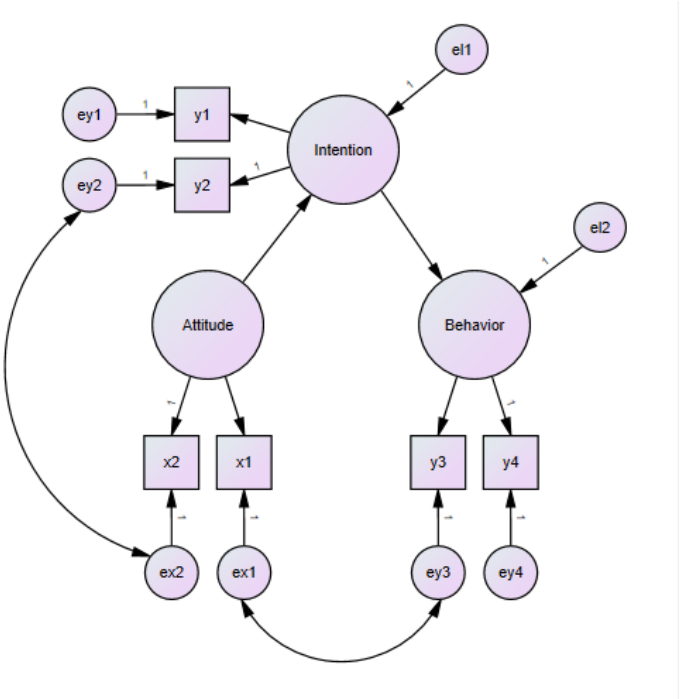
Minimum was achieved
Chi-square = 1.072
Degrees of freedom = 4
Probability level = .899

Now, we can see that **probability level became non-significant and much higher than 0.05**, so we can say that the goodness of fit of the modified measurement model is very accurate; this is also suggested by all other evaluation metrics (RMSEA: 0.000, GFI: 0.999, CFI: 1.000).

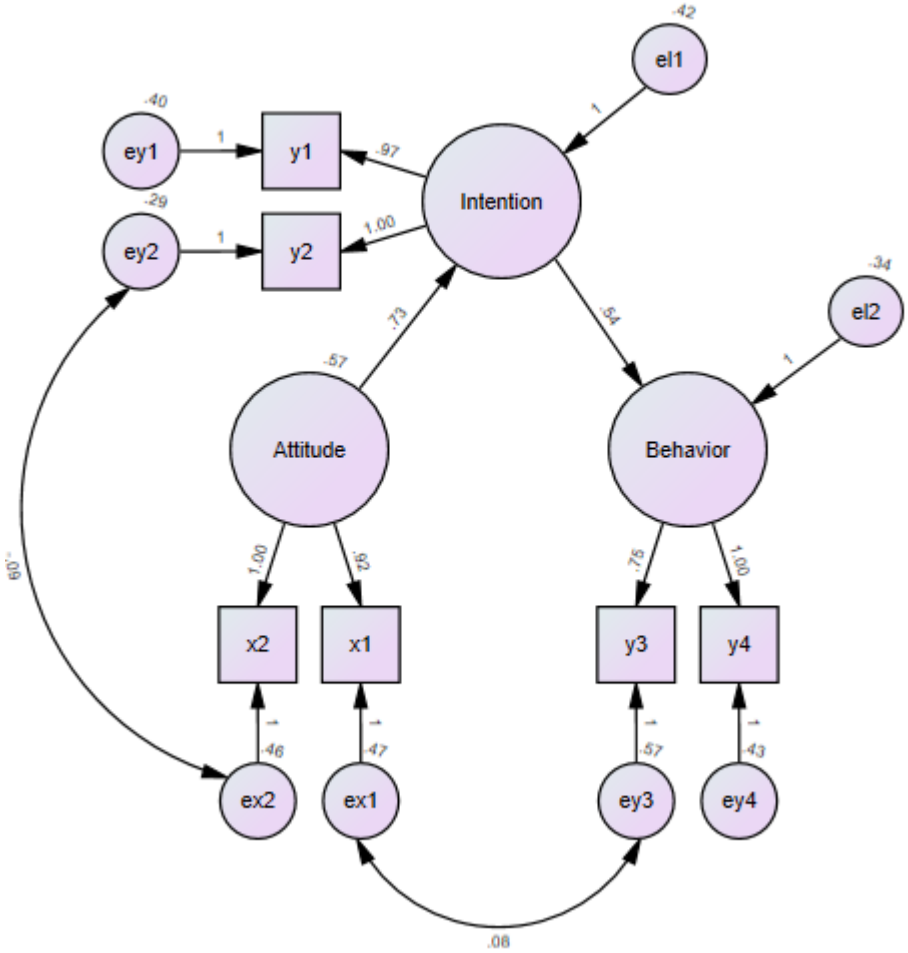
2. The table below shows the estimated parameters (non-standardized) in our structured equation model and other important information:

			Estimate	S.E.	C.R.	P	Label
Intention	<---	Attitude	.731	.084	8.715	***	
Behavior	<---	Intention	.520	.084	6.157	***	
Behavior	<---	Attitude	.034	.096	.356	.722	
y2	<---	Intention	1.000				
y1	<---	Intention	.968	.070	13.769	***	
x2	<---	Attitude	1.000				
x1	<---	Attitude	.924	.103	9.007	***	
y4	<---	Behavior	1.000				
y3	<---	Behavior	.757	.096	7.900	***	

We can see that the path from “Attitude” to “Behavior” is nonsignificant. In other words, attitude does not have a direct effect on behavior. Thus, we can drop that relationship and modify the structed equation model.



3. After modifying our structured equation model, we got the following estimates (non-standardized):



4. In **answer 2**, we saw that **attitude** does not have a direct effect on **behavior**. Now, let's see whether it has an indirect effect through **intention** on **behavior**.

Parameter	Estimate	Lower	Upper	P
indirect_effect	.399	.299	.524	.001

The indirect effect of **attitude** on **behavio**r was estimated to be 0.399, and it was statistically significant. Its 95% confidence interval was determined to be (.299, 0.524). So, although **attitude** does not have a direct effect on **behavior**, it has an indirect effect on it through **intention**.