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**SEX DIFFERENCES  
IN INTERNAL-EXTERNAL LOCUS OF CONTROL  
(A Factorial Study)**

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**SUMMARY**

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It was hypothesized that there were differences between males and females in factorial structure of locus of control. Adult Nowicki-Strickland Internal-External Locus of Control Scale was administered to 122 male and 120 female undergraduates. A factor analysis yielded six and five dimensions for males and females, respectively. Results indicated that males are more internal than females. Further research is required.

As defined by Rotter (1966) locus of control is a belief in one's own ability to control reinforcements. An internally controlled person perceives himself as being in control of what happens. A person of external control feels that what happens to him is the result of luck, fate, chance, powerful others, or forces too complex to understand.

Some researchers have found that females are significantly more external than males. Kathovsky, Crandall and Good (1967) found the Intellectual Achievement Responsibility Questionnaire (IARO) scores of females to be significantly ( $P < .05$ ) more external than those of males. As well, Hurlburt, Gade and Fuqua (1983) found the Rotter 1-E scale scores of females alcoholics to be significantly ( $P < .05$ ) more external than those of males. Rao and Murphy (1984) administered the locus of control scale (Valecha, Sridhar and Nandgopal, (1980) to 540 undergraduates who were attending a college in India. They observed women exhibited significantly greater

externality (  $P < .05$  ) than men on this measure. Similarly, Strickland and Hailey (1980) administered the Rotter I-E Scale to undergraduates. A comparison of the mean scores of males and females showed the latter significantly (  $P < .05$  ) more external.

Other researchers ( Rotter, 1966; Feather, 1967 ) who have examined the Rotter I-E scale performance of undergraduates also reported females generally score more externally than males. Further previous studies, McNeil and Jacobs (1980), Toves, Schill and Ramanih (1981), on the issue of sex differences in locus of control, indicated that males are more internal, while females are more external. Conversely, Cooper, Burger and Good (1981) found that females are more internal than males. Other previous studies of Penk (1969), Krovetz (1974), Lefcourt Hogg, Struthers and Holmes (1975), Barling and Fincham (1978), Stanley, Hyman and Sharp (1983), Moussa (1985), assume no sex differences in locus of control.

These inconsistent results on the issue of sex differences in locus of control may be due to the multidimensionality of the locus of control construct. A number of studies indicate that the Rotter I-E scale at least several separate dimensions of internal-external control. Rotter's instrument was originally devised to measure a generalized expectancy for internal versus external control of reinforcement. Rotter (1966) reported two factors analyses of the I-E scale which yielded a general and account for much of the variance.

However, Mirels (1970) analysis of responses on the 23 item scale by 159 male and 157 female undergraduates using principle component method indicated at least two factors each for male and female samples. Factor I accounting for 10.9 o/o of the variance for men and 12.1 o/o of the variance for women was identified as representing an individual's expectancy concerning felt control over the course of one's life. Factor II accounting for 8.6 o/o of the variance in men and 6.7 o/o women reflected an individual's expectancy regarding perceived control over political and world affairs.

Two other investigators have reported results similar to Mirels. Abrahamson, Schludermann, and Schludermann (1973) administered the I-E scale to 113 female undergraduates at the University of Manitoba. The principle component method was employed to analyze the data and components were rotated orthogonally by the varimax method. Abrahamson, Schludermann, and Schludermann's analysis gave the same factor this Canadian sample as those reported by Mirels. Similarly, Viney (1974) administered Rotter's I-E Scales to 159 male and 134 female Australian adolescents. Following the same method as Mirels, she too essentially replicated his findings. Another several studies have been carried out to explore the multidimensional construct of locus of control; for example these of Collins (1974) and Gurin, Gurin, Lao Beattie (1969) which have factor analyzed the Rotter's I-E (1969) scale.

In addition, results of a factor analysis of the Nowicki-Strickland- Internal-External Locus of Control Scale ( NS-IE ) by Nowicki (1976) indicated a general factor which was consistent across all ages. Kendall, Finch, Little and Chirico (1978) factor analyzed NS-IE separately the responses of normal, emotionally disturbed and delinquent samples and obtained seven, five and six factors respectively, from these analyses.

Wolf, Skiof, Wenzle, Hunter and Borenson (1982) analyzed the responses of 368 10 to 17 year old students NS-IE and obtained three factors. The 10 items loading on factor I suggested a definition of failure at personal control and a feeling of helplessness. The seven items in factor II led to a little of achievement and friendship. Finally, the three items in factor III provided a Label of luck.

Barling (1982) analyzed the responses of 74 boys and 74 girls ( $\bar{X}$  age = 120.09 months, SD = 12.97 ). Principle components factor analysis with varimax rotation of the NS-IE scale yielded two acceptable factors, the first factor is personal action and the second factor is luck. Walters and Klein (1980) analyzed the responses of two samples which consisted of 349 cases and the other of 404

cases high school students who completed the 21-items that are recommended for use with adolescents of NS-IE ( Nowicki and Strickland, 1973 ). The results yielded two factors, the first factors ( 6 items ) concerned with individual's control over things outside himself was named social control. Item on the second factor ( 2 items ) seemed more relevant to control over oneself than others. Thus, it was named self control.

Finally, Moussa (1985) analyzed the responses of two samples which consisted of 124 cases and the other of 196 cases middle school children who completed the 40-items of NS-IE scale. The results yielded eight factors for the first sample which were identified as : helplessness, family consistency, striving, luck, achievement, struggle, competitiveness and independence. While, in the second sample, it yielded six factors which were identified as : competition, deficiency, disability, luck, capability and independence.

Therefore, the lack of significant differences between males and females on locus of control in previous researches reflected the fact that these studies considered internality-externality a unidimensional Trait. Thus, the purpose of this study is to investigate if there are differences between males and females in factorial structure of Locus of control. It was hypothesized that there are differences between males and females in factorial structure of Locus control variable.

## B. METHOD

Undergraduates, 122 male students (  $\bar{X}$  age = 21.80 yrs. old SD = 1.78 ) and 120 female students (  $\bar{X}$  age = 22.22 yrs. old SD = 1.65 ) from Faculty of Education ( grades : 2,3,4 ) and Faculty of Humanities for Girls ( grades : 3,4 ) Azhar University, volunteered to participate in this study. All subjects were administered Adult Nowicki-Strickland-Internal-External locus of control scale (ANS-IE) (Nowicki and Duke, 1974) which was designed as a measure of generalized expectancies for internal versus external control of rein-

forcement. This scale consists of 40 items having yes-no responses. This scale was translated into Arabic Language to be suitable to Egyptian students. The reliability and validity of this scale was mentioned in elsewhere Moussa and Abo Nahia, (1987). Typical items are :

- \* Do you believe that wishing can make good things happen ?
- \* Do you think it's better to be clever than to be lucky ?

To recognize the factorial construct of locus of control variable between males and females, principle component analysis with a varimax rotation (Ferguson, 1981) was performed on the responses to the ANS-IE scale to identify the underlying dimensions for males and females, separately.

### C. RESULTS

The intercorrelation matrix of the 40 items of locus of control scale (ANS-IE) was subjected to first order factor analysis procedures using a principle components analysis with orthogonal rotation of factors with eigenvalues above 1.0. This procedure resulted for male and female subjects in 15 and 16 factors, consequently with eigenvalues above 1.0 after rotation. These factors accounted for 65,529 o/o common variance for males and 68,716 o/o common variance for females (1).

In addition, to summarize these factors, another intercorrelation matrix of the 15 and 16 factors of locus of control was subjected to second order factor analysis procedures using a principle compon-

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(1) A complete report of the factor loadings for males and females of the scale in the form of an ANSIE is available from R. Moussa, Department of Mental Hygiene, Faculty of Education, Azhar University, Cairo.

ents analysis with orthogonal rotation of factors with eigenvalues above 1.0. This procedure resulted in six factors for males and five factors for females with eigenvalues above 1.0 after rotation. These factors accounted for 62.709 o/o common variance for males and 55.034 o/o common variance for females. The factor loadings for the six and five factors are presented in table (1) and (2), consquently.

**Table (1)**  
**Varimax Rotated Factor Loadings**  
**FOR ANS-IE Scale for**  
**Male Subjects ( N = 122 )**

First Order Factors	Second order factors						Comm. unatites
	1	2	3	4	5	6	
1	-.08	-.08	.04	.75	.07	.24	.63
2	-.29	.27	.06	.04	-.68	-.06	.64
3	.28	.37	-.07	.27	.53	.16	.58
4	-.22	-.16	-.11	-.02	-.05	.62	.47
5	.23	-.22	.55	.04	-.56	.13	.74
6	.00	-.09	.10	-.17	.61	-.56	.73
7	.77	.05	-.14	-.01	.08	-.13	.64
8	-.72	.18	.20	-.03	-.03	.12	.59
9	-.24	.43	.67	.15	.01	.05	.75
10	.03	-.15	-.06	.70	.20	-.34	.63
11	-.07	-.41	.30	-.03	.18	.61	.66
12	.09	.24	-.76	.10	.40	.12	.66
13	.60	.24	.21	-.06	.20	-.00	.53
14	.08	.75	.02	-.03	-.02	-.18	.59
15	-.04	.69	-.07	-.26	-.03	-.10	.56
Latent root	2.58	1.94	1.40	1.27	1.15	1.06	
Variance	17.22	12.93	9.33	8.44	7.70	7.09	



Table (2)  
Varimax Rotated Factor Loadings  
For ANS-IE Scale for  
Female Subjects ( N = 120 )

First Order Factors	Second order factors					Comm- unatites
	1	2	3	4	5	
1	.07	.27	-.20	-.66	-.05	.54
2	-.07	.04	-.69	-.08	.24	.54
3	.42	-.01	.05	-.04	-.47	.44
4	-.52	.32	-.35	-.01	.02	.49
5	.06	.10	-.73	.09	-.02	.55
6	-.70	-.33	.12	.17	-.14	.66
7	-.19	.18	.57	.16	.29	.55
8	.29	-.64	-.09	.22	.09	.55
9	.16	-.01	.13	-.12	.66	.49
10	.30	.01	-.21	-.03	.70	.62
11	-.14	-.47	.15	-.45	-.23	.59
12	.23	.72	.08	.05	.14	.59
13	-.79	.12	.15	-.00	-.12	.66
14	.61	.02	.10	.35	.23	.55
15	-.12	.52	-.28	-.25	-.25	.48
16	.01	.01	.01	-.74	.20	.58
Latent root	2.37	2.36	1.49	1.30	1.28	
Variance	14.81	14.79	9.30	8.13	8.00	

## D. DISCUSSION

### 1. For male subjects :

Inspection of the high loading items within each factor indicated the following six dimensions within the ANS-IE Scale. Factor 1 : reveals items that reflect independence ( Items 2,9,34), Factor 2 : reveals items that reflect Ability (Items, 14,35). Factor 3 : reveals items reflect Struggle (Items 13,15,24), Factor 4 : reveals items reflect Achievement (Items 3,6), Factor 5 : reveals items reflect Powerlessness (Items 10,16,36) and Factor 6 : reveals items reflect Luck (Items 1,4). These factors accounted for 17,22 o/o, 9,33 o/o, 8,44 o/o, 7,70 o/o, 7,09 o/o, respectively.

These results are consistent with the psychological literature which indicated that parents emphasize independence and achievement more for males than females (Block, 1973). There is also preliminary evidence that teachers may respond differently to boys and girls. Serbin, O'Leary and Kent (1973) found preschool teachers responded to the solicitation of boys with more directions and instructions. They also found teachers responded more to boys who were participating appropriately in class activities. It is possible that parental emphasis on males' independence, achievement and greater encouragement by teachers of boy's struggle to achieve may foster the perception among males that success in life is dependent on their own efforts.

### 2. For female subjects :

As well, inspection of the high loading items within each factor indicated the following five dimensions within the ANS-IE Scale : Factor 1 : shows items that reflect Luck (Items 1,9,24), Factor 2 : shows items that reflect Apathy (Items 10,11,19,35), Factor 3 : shows items that reflect Capability (Items 17,33,40), Factor 4 : shows items that reflect Ability (Items 2,34,36) and Factor 5 : shows items that reflect Self-Oriented (Items 15,25). These factors accounted

for 14,81 o/o, 14,79 o/o, 9,30 o/o, 8,13 o/o, 8 o/o, respectively.

These results indicate that the lack of training remales to achieve and struggle may promote a more external orientation. The influence of the "Women's Movement" on female locus of control has not yet fully assessed. Holleren and Lopez (1984) examined the relationship between sex-typical and sex- a typical career choices of college undergraduates and a number of variables. Of these variables studied, sex was the most powerful predictor of sex-aypical carrer choice for both men and women. No relationship was found between internality-externality and birth order, number of siblings, and sex role-orientation. Data from the present investigation suggest females feel that success in life is not contingent upon their own efforts.

Finally, the current results support some previous studies (Katkovsky et al., 1967; Hurlburt et al., 1983) that males are more internal than females. Further studies are required to investigate the factorial construct of locus of control in different cultures and at different age levels.

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## الفرق بين الجنسين فى موضع الضبط الداخلى - الخارجى

اعداد

دكتور رشاد عبد العزيز موسى

قسم الصحة النفسية

كلية التربية - جامعة الأزهر

يفترض البحث الحالى ان هناك اختلافا بين الذكور والاناث فى البنية العامية لموضع الضبط الداخلى - الخارجى . ولتحقق من هذا الفرض استخدم مقياس نيوكى - ستريكلاند لموضع الضبط الداخلى - الخارجى للراشدين ، وتم تطبيقه على عينة تكونت من ١٢٢ طالبا جامعا ( المتوسط الحسابى لأعمارهم = ٢١.٨٠ سنة ، والانحراف المعياري = ٢٢.٢٢ سنة . واستخدم التحليل العاملى من الدرجة الأولى والثانية لمعرفة البنية العامية لكل من الذكور والاناث على حده . ولقد أمكن التوصل الى ستة عوامل لعينة الذكور هم كالتالى :

- الاستقلال - القوة - الكفاح  
- التحصيل - العجز - الحظ

وخمسة عوامل لعينة الاناث هم كالتالى :

- الحظ - اللامبالاة - الامكانية  
- القدرة - توجيه الذات

وعند فحص هذه العوامل تبين ان مجموعة الذكور تميزت بارتفاع الضبط الداخلى .

وقد فسرت النتائج فى ضوء ما بينته الدراسات السابقة عن اثر استايب التنشئة على الجنسين ، وأوصى البحث الحالى بأن تجرى دراسات اخرى للكشف عن البنية العامية لموضع الضبط الداخلى - والخارجى باختلاف الثقافات وباختلاف مستويات العمر .