A Study of Al-Balqa' Applied University Students Cognitive Style

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Abstract

This study aims to investigate the (field-dependent & field-independent) cognitive style and its relation with gender, academic specialization and GPA among BAUS. A stratified sample of (600) Students was chosen. The Arabic version of GEFT was administrated. Results can be summarized as follows: There were no statistically significant differences in the (field-dependent & field-independent) cognitive style among gender, there were statistically significant differences in the field-independent cognitive style among academic specialization and GPA.

Keywords: Field-dependent, Field-independent, Cognitive style**,** GPA

1. Introduction

Individual differences phenomena have received much attention from psychologists and educators, in order to identify the factors affecting it, to get a clear understanding of it, and to achieve the best possible level of success and satisfaction at all fields (academicals, vocational, and social). Cognitive styles have emerged as a new dimension within the individual differences through cognitive psychology studies in the field of information processing. It has a particular importance, it determines the way information processing when solving problems or making decisions or interpretation of stimuli and response, Individual has his/ her own style in the organization of perception and memory. Therefore, psychologists were interested in studying as an important dimension of the dimensions of individual differences, cognitive style is the basis of discrimination between individuals during their interaction with the elements of the situation, and also is an important approach to understanding and personal way of thinking (Sternberg & Willams, 2002). Study of cognitive style also helps people identify the potential of the individual preparations, in order to be considered when designing educational programs, academic and vocational guidance (Ates & Catalogu, 2007). Etoum (2004) indicates that one of the most important guidelines that prescribe the form of learning and how to deal with the elements of the position of learning is cognitive style, and there is a relationship between cognitive style and academic achievement.

Psychologists have cited multiple definitions of cognitive style, these definitions are almost similar. Witkin, et al. (1977) defined it as "a unique way of dealing with information in terms of receiving, coding, maintenance and using". While Santroch (2006) defined it as "preference way understanding and information processing and world stimuli organization, it determines the way of comprehension and memory and problem-solving". Vaidy & Chansky (1980) defined it as "a way of organizing the perception of environmental stimuli, filtering system of experiences and environmental stimuli, which integrates with the construction of knowledge". But Guilford (1997) defined it as "a control processes of human behavior embodied with a number of cognitive ability or cognitive controls".

Cognitive style has multiple properties. The cognitive style associated with the shape of cognitive activity not its content, relative stability, bilateral dimensions. Neutral value, facilitates a holistic view of personality (Sternberg & Willams, 2002).

There are many dimensions of cognitive styles that distinguishes individuals in their dealings with the various positions which they exposed. The most important of these dimensions is field-dependent and field-independent cognitive style. This dimension refers to relatively stable individual differences in the interaction with the elements of the situation; Individuals with field-independent cognitive style have ability to deal with the subject perceived separately from the surrounding elements, and consider those elements which appear as a background figure as a whole. While individuals with field-dependent cognitive style can not deal with the subject perceived separately from the surrounding elements (Ates & Catalogu, 2007). Witkin et al. (1977) suggested that individuals with field-independent cognitive style have psychological and social characteristics, the most important: high-ability of analysis, self-leadership, resolve the problem in absence of clear data, not affected by criticism, enjoy dealing with

abstract ideas and theories, relatively tend to be concentrated on self, enjoying the isolation, high ambition, clear awareness of there (needs, feelings and goals), tend to confrontation, indifference to the opinion of others, prefer technological disciplines, tend to deal with complex situations, and prefer independent activities. While individuals with field-dependent cognitive style are friendly, tend to work with others, do not enjoy dealing with abstract ideas and theories, influenced by others, less Centered around the self, responding largely to outside stimuli, need detailed information to solve problems, adept at solving problems related to social interaction, affected by criticism, prefer occupations which are based on interaction with others, do not prefer tasks that require analysis.

2. Review of Studies

For the important role of field-dependent and field-independent cognitive style many studies were conducted concerning it relationship with many variables, such as the academic specialization, academic achievement, gender and other variables. Derussy & Futch (1971), Kim (1987), and Enooz (2003) pointed that students with field-independent cognitive style tend to scientific disciplines, while students with field-dependent cognitive style tend to humanitarian disciplines. Arrington (1987), Nabulsi (1995), Ellen (2001), and Enooz (2003) pointed that males tend to field-independent cognitive style, while females tend to field-dependent cognitive style. Cherkaoui (1985) Smadi (1992) pointed that no differences between males and females in field-dependent and field-independent cognitive style. Muhammad (2001) pointed that students with field-independent cognitive style have higher academic achievement than students with field-dependent cognitive style. Terry (1988) pointed that no differences between field-dependent and field-independent cognitive style in academic achievement.

3. Importance of Study

It is a common belief among educators and psychological that the field-dependent and field-independent cognitive style associated with different variables which effect in students academic achievement. The present study specifically addresses the relationship between (field-dependent & field-independent) cognitive style and gender, academic specialization and GPA among BAUS. Hopefully, findings from this study would be helpful for educators and other workers in the educational field to boost academic and vocational guidance, in order to spare students academic failure. In addition, this will enrich the knowledge of previous studies in this field.

4. Study Questions

i. What is the cognitive style (field-dependent & field-independent cognitive style) among BAUS?

ii. Are there statistically significant differences in the (field-dependent & field-independent) cognitive style attributed to gender, academic specialization and GPA?

5. Abbreviation

i. GPA: Grade point average.

ii. GEFT: Group Embedded Figures Test.

iii. BAUS: Balqa' Applied University Students.

6. Limitations

i. Results from this study would be limited by how valid and reliable are instrument used in this study.

ii. This study involved a sample recruited from BAUS enrolled during the academic year 2009/2010.

7. Methods

7.1 Participants

The population of the study consisted of the whole BAUS enrolled during the academic year 2009/2010. The sample of study consisted of (600) students selected by simple random method from BAUS faculties. Table (1) shows participant characteristics.

7.2 Instrument

This study used The Arabic version of GEFT by Witkin et al. (1977). This test measures the (field-dependent & field-independent) cognitive style, It consists of three parts, first includes seven items especially for trained research subjects to the test for tow minutes. The second consists of nine items for five minutes. The third also consists of nine items for five minutes. This test is not affected by culture and language, each item of the test consists of complex figure includes a simple figure, student must determine the Simple figure which included in the complex figure by a pencil.

7.3 Procedures

After gathering students answers about the GEFT. The grade of (0-8) indicated to the dependent cognitive style, the grade of (9-18) indicated to the independent cognitive style. Next the "T" test and (3 way ANOVA) were used to analysis the data.

8. Results

8.1 Results related to question one: "What is the cognitive style (field-dependent & field-independent cognitive style) among BAUS?" To answer this question, means and standard deviations were compute for grades obtained by participants on the GEFT as shown by table (2). Table (2) shows that mean grade (10.89) of participants on the GEFT, comparing this mean grade with the cut point (9) by "T" test indicated to statistically significant differences. This indicates that the cognitive style of BAUS is the field- independent cognitive style.

8.2 Results related to question two: "Are there statistically significant differences in the (field-dependent & field-independent) cognitive style attributed to gender, academic specialization and GPA?" To answer this question, means and standard deviations were computed for grades obtained by participants on the GEFT as shown by table (3). To check whether differences between means were statistically significant. The (3-way ANOVA) conducted and table (4) shows related results. Table (4) shows there were no a statistically significant differences in the (field-dependent & field-independent) cognitive style among gender. In contrast, table (4) shows statistically significant differences in the field-independent cognitive style among academic specialization in favor of scientific disciplines students as shown by table (3). Similarly, table (4) demonstrates statistically significant differences in the field-independent cognitive style among GPA in favor of Students were GPA (excellent, very good, and good) as shown by table (5).

9. Discussion

The results from the current study demonstrate that the cognitive style of BAUS is the field-independent cognitive style. This result can be explained by interplay of the high grades obtained by scientific disciplines students, which make the overall average, tends the field-independent cognitive style. Results further shows there were no a statistically significant differences in the (field-dependent & field-independent) cognitive style among gender. This result is in consistent with Cherkaoui (1985) Smadi (1992). Differed with Arrington (1987), Nabulsi (1995), Ellen (2001), and Enooz (2003). On the other hand, the Results indicated statistically significant differences in the field-independent cognitive style among academic specialization in favor of scientific disciplines students. This result is in consistent with Derussy & Futch (1971), Kim (1987), and Enooz (2003). This result can be attributed to the special skills that are prerequisites to progress in scientific disciplines such as: high-ability of analysis, resolve the problem in absence of clear data, enjoy dealing with abstract ideas and theories, enjoying the isolation, high ambition, prefer technological disciplines, tend to deal with complex situations… etc. This represented the student who has the field-independent cognitive style. Also the results indicated a statistically significant differences in the field-independent cognitive style among GPA in favor of Students were GPA (excellent, very good, and good). This result is in consistent with Muhammad (2001) and Enooz (2003). But differed with Terry (1988). This result can be interpreted from the nature of skills that represented in the student who have the field-independent cognitive style, which enables him/her to overcome the challenges of educational situations. This in turn reduces probability of failure and feeling of frustration, promotes self-confidence, and increases motivation to academic achievement.

10. Conclusion

The conclusion of the current study is that the (field-dependent & field-independent) cognitive style attributed to academic specialization and GPA. In light of the results that concluded by this study, it is recommended to pay greater attention to individual differences in the (field-dependent & field-independent) cognitive style. It must be taken into account when choosing a method of teaching, evaluation and academic guidance.

References

Ates, S., & Cataloglu, E. (2007). The Effect of Cognitive Styles on Conceptual Understandings and Problem-Solving Skills in Introductory Mathematics. *Research in Science and Technological*, 25(2), 16-21

Arrington, H. J. (1987). An Investigation of the Relationships between Cognitive Style, Visualization, and Problem Solving in Eight – Grade Males and Females. Doctoral Dissertation, Purdue University, *Dissertation Abstracts International*, 49, 2151-A.

Cherkaoui, M. A. (1985). Cognitive Styles characteristic of Kuwait University Students. *Journal of Social Sciences*, 9 (1), 63-87

Derussy, E., & Futch, E. (1971). Field Dependence–Independence as Related to College Curricula. *Perceptual and Motor Skills*, 33, 1235-1237

Ellen, C. H. (2001). The Relation of Cognitive Style and Gender of Successful First Time Examination. *Dissertation Abstracts International,* 58, 3241-A.

Enooz, S. M. (2003). Cognitive Style among Yarmouk University Students in the Light of Some Variables. *Unpublished MA Thesis*, Yarmouk University, Irbid, Jordan.

Etoum, A. (2004). *Cognitive psychology*. Amman: Dar Al massira, (Chapter 12).

Guilford, J. (1997). *Creative talents: their nature uses and development*. New York: Barely Limited Inc.

Kim, S. G. (1987). A Study of Korean High School Students, Field Dependence-Independence Cognitive Style. Doctoral Dissertation, Pittsburgh University. *Dissertation Abstracts International*, 49, 715-A.

Muhammad, A. (2001). The Role of Cognitive Style in Creative Performance. *Journal of Psychology*, 45 (11), 16-51

Nabulsi, R. (1995). The Impact of Training on Group Embedded Figures Test in Cognitive Style. *Unpublished MA Thesis*, Yarmouk University, Irbid, Jordan.

Santrock, J. W. (2006). *Educational psychology*. New York: McGraw-Hill Inc.

Smadi, A. (1992) The Effect of Academic Level, Cognitive Style and Control Centre in The Ability of Solve problems. *Unpublished MA Thesis*, University of Jordan, Amman, Jordan.

Sternberg, R. J., & Williams, W, M. (2002). *Educational psychology*. Boston: Pearson Education Company.

Terry, G. D. (1988). The Differences between Field Dependence and Field-Independence Cognitive Style of Sixth-Grade Students and Teachers and Student Subsequent Mathematics Achievement. Doctoral Dissertation, *Dissertation Abstracts International*, 50, 3536-A.

Vaidya, S., & Chansky, N. (1980). Cognitive Development and Cognitive Style as a Factor in Mathematics Achievement. *Journal of Education Psychology*, 72, 617-618

Witkin, H., Moor, C. A., Goodenough, D., & Cox, P. W. (1977). Field-Dependent and Field-Independent Cognitive Style and Their Educational Implications. *Review of Educational Research,* 47, 1-64

Table 1. Participant characteristics.

Academic specialization	**GPA**	**Gender**		**Total**
		Male	**Female**	
Scientific disciplines	Accepted	28	13	41
	Good	36	41	77
	Very Good	47	55	102
	Excellent	46	34	80
	Total	157	143	300
Humanitarian disciplines	Accepted	30	82	112
	Good	42	38	80
	Very Good	42	27	69
	Excellent	24	15	39
	Total	138	162	300
Total	Accepted	58	95	153
	Good	78	79	157
	Very Good	89	82	171
	Excellent	70	49	119
	Total	295	305	600

Table 2. T-test results comparing mean grade on the GEFT with the cut point.

N	**M**	**SD**	**Cut Point**	**T-Value**	**α**
600	10.89	4.68	9	9.97	0.000

Table 3. Means and standard deviations of overall subject estimates on the GEFT by gender, academic specialization & GPA variables.

Academic specialization	GPA	Gender						Total		
		Male			Female					
		M	SD	N	M	SD	N	M	SD	N
Scientific disciplines	Accepted	12.5	2.66	28	9.46	4.99	13	11.54	3.78	41
	Good	12.89	2.86	36	13.12	3.23	41	13.01	3.05	77
	Very Good	15.23	2.8	47	13.47	1.98	55	14.28	2.54	102
	Excellent	16.46	1.95	46	13.91	2.83	34	15.38	2.66	80
	Total	14.57	3.0	157	13.11	3.13	143	13.87	3.15	300
Humanitarian disciplines	Accepted	6.63	2.04	30	6.56	3.77	82	6.58	3.38	112
	Good	8.07	3.14	42	7.97	3.38	38	8.03	3.23	80
	Very Good	8.55	4.24	42	9.48	4.87	27	8.91	4.49	69
	Excellent	8.83	3.64	24	10.87	4.74	15	9.62	4.16	39
	Total	8.04	3.47	138	7.78	4.21	162	7.09	3.88	300
Total	Accepted	9.47	3.77	58	6.96	4.05	95	7.91	4.12	153
	Good	10.29	3.85	78	10.65	4.18	79	10.47	4.01	157
	Very Good	12.08	4.87	89	12.16	3.71	82	12.12	4.34	171
	Excellent	13.84	4.49	70	12.98	3.75	49	13.49	4.21	119
	Total	11.51	4.59	295	10.28	4.59	305	10.89	4.89	600

Table 4. Results summary of the analysis of variance (3 way ANOVA).

Source	Sum of squares	d f	Mean square	F	α
Gender	35.77	1	35.77	3.32	0.069
Scientific disciplines	3087.60	1	3087.60	286.87	0.000
GPA	834.15	3	278.05	25.834	0.000
Error	6285.593	584	10.763		
Total	8395.00	600			

Table 5. Shefee test results comparing mean grade on the GEFT by GPA variable.

GPA	Accepted	Good	Very Good	Excellent
Accepted	-	*2.56	*4.21	*5.58
Good	-	-	*1.65	*3.02
Very Good	-	-	-	*1.37