COGNITIVE STYLES AND ACADEMIC BEHAVIORAL CONFIDENCE OF STUDENT TEACHERS

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Abstract

Understanding a person's cognitive style preference can provide to be aware of himself and his abilities. This awareness has positive effect to feel more confident in learning and performing tasks. The purpose of this study was to investigate cognitive styles and academic behavioral confidence of student teachers. A total of 846 student teachers from ten Education Degree Colleges participated in this study. Cognitive Style Inventory (Martin, 1982) and Academic Behavioral Confidence Scale (Sander & Sanders, 2003) were used in this study. Chi-square analysis indicated that there was a significant association of cognitive styles in gender and Education Degree Colleges. The independent samples *t*-test results indicated that female student teachers were significantly higher than male student teachers in academic behavioral confidence. ANOVA results showed that academic behavioral confidence was significantly different by Education Degree Colleges. The result indicated that there were significant differences of academic behavioral confidence by cognitive styles. Student teachers with integrated style and systematic style were higher in academic behavioral confidence than those with split style, undifferentiated style and intuitive style.

Keywords: Cognitive Style, Academic Behavioral Confidence, Student Teachers

Introduction

Cognitive styles as consistent individual ways of organizing and processing information and experience are referred to a psychological dimension representing consistencies in an individual's manner of cognitive functioning, particularly with respect to acquiring and processing information (Messick, 1984). Individuals who know and understand their own particular cognitive styles are able to understand themselves and their unique preferences towards solving problems or confronting issues. In addition, knowledge of teacher and student cognitive style preferences assists educators to better understand their teachers and students in the teaching and learning environment.

Cognitive styles defined as the way people perceive stimuli and how they use this information to guide their behavior i.e., thinking, feeling, actions (Hayes & Allinson, 1998). There are different cognitive styles for each person. Every student teacher has own style of learning and thinking. Knowledge of these similarities and differences is crucial in education especially in learning. The sensitivity of the student teachers in dealing with individual's differences in cognitive style may be significant influence in facilitating on their own study and nurturing confident in academic performance.

Understanding individuals' cognitive style preferences helps them be aware of themselves, their abilities, how they learn, how they think and why they differ from peers. This awareness has positive psychological effects for learners. They can gain self-esteem and feel more confident about themselves (Sarasin, 2006). Confidence plays a significant role in students' learning. Students with higher level of academic confidence are proved to be high achievers.

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Internal motivation is an important component in improving students' academic confidence (Georgiou, 1999).

Academic confidence means one strong beliefs or definite expectancy in academic field of the student (Sander, 2004). In any training setting, especially in educational profession, a student teacher's confidence in learning is generally regarded as one of the most critical determinants for the successful profession. Therefore, student teachers should understand their own cognitive styles to provide and improve their learning during their trainee sessions and that will continue to help understand their pupils' cognitive styles in their future. Furthermore, noticing a person's own cognitive style can reflect how much the extent of confident on his learning and profession. Therefore, this study will investigate the differences of academic behavioral confidence by cognitive styles.

Purpose of the Study

The main purpose of the study is to investigate cognitive styles and academic behavioral confidence of student teachers.

The specific objectives are as follows:

- To identify cognitive styles of student teachers,
- To examine cognitive styles of student teachers by gender, subject combinations and education degree colleges,
- To examine academic behavioral confidence of student teachers by gender, subject combinations and education degree colleges,
- To investigate academic behavioral confidence by cognitive styles

Definitions of Key Terms

Cognitive style. Cognitive Style is the preferred way, which an individual processes information (Martin, 1982).

Academic behavioral confidence. Academic behavioral confidence (ABC) is a construct that refers to the students' beliefs that they can perform competently in a particular learning situation. It is conceptualized as being how students behave in the extent to which they have a strong belief, firm trust, or sure expectation in their ability to respond to the demands of studying at school (Sander & Sanders, 2003).

Student teacher. Student teacher is defined as a student who is doing pre-service training in teaching (Ngidi & Sibaya, 2003).

Review of Related Literature

Cognitive Style

Cognitive styles can be described as structural properties of the cognitive system itself from a systems perspective (Kogan, 1971). Early studies resulted in a single dimension of cognitive style with two extremes by as systematic styles and intuitive styles (Botkin, 1974). Logical, rational behavior that uses a step-by-step, sequential approach is represented to the systematic style and the intuitive-style is a spontaneous holistic and visual approach.

Therefore, Martin developed a multidimensional model intended to reflect the entire field of people's behavior with regard to thinking, learning, and especially problem solving and decision making. This model consisted of two continua: (1) high systematic to low systematic and (2) high intuitive to low intuitive. In adapted version of cognitive style model, the five styles were included.

1. Systematic style. An individual with a systematic style uses a well-defined, step-by-step approach when solving a problem; looks for an overall method or programmatic approach; and then makes an overall plan for solving the problem (Martin, 1982).

2. Intuitive style. A person with intuitive style applies an unpredictable ordering of analytical steps when solving a problem, relies on experience patterns characterized by universalized cues and explores and abandons alternatives quickly (Martin, 1982).

3. Integrated style. A person whose style is integrated can refer to as problem seeker because he is able to change styles quickly and easily and tries to search possible problems as well as opportunities in order to find better ways of doing things (Martin, 1982).

4. Undifferentiated style. A person who possesses undifferentiated style cannot distinguish between the two style extremes and, therefore, appears not to display a style. Actually, in a problem-solving or learning situation, he or she may exhibit receptivity to instructions or guidelines from outside sources (Martin, 1982).

5. Split style. People with a split style reveal each different dimension in absolutely separate settings, using only one style at a time based on the nature of their tasks or their work groups. This means that they consciously respond to problem-solving and learning situations by selecting appropriate style (Martin, 1982).

Academic Behavioral Confidence

Academic behavioral confidence is related to a student's confidence and belief in their capacity to respond to the demands they face in college and to meet expectations. Academic Behavioral Confidence is conceptualized as a student's belief that they are able to do proficient performance in certain learning situations. It is a concept that how a student behaves with strong and firm beliefs, or certain expectations in their abilities that are determined by academic self-efficacy (Sander & Sanders, 2009). Academic confidence is the student's conviction about performing a task at a particular level in order to attain a specific academic goal (Sander & Sanders, 2005).

Method

Participants of the Study

Participants were selected by using stratified random sampling technique. A total of 846 student teachers (M_{age} = 19 years old, SD_{age} = 1.58) from Education Degree Colleges participated in this study. Among the respondents, 380 were male (45%) and 466 were female (55%).

Instrumentation

Cognitive styles of student teachers were identified by using Cognitive Style Inventory (CSI) which was developed by Martin (1982). It consists of 40 items which measure systematic style and intuitive style consisting of 20 items each on a 5-point Likert format. Five responses

categorized as from 1 = strongly disagree to 5 = strongly agree. The reliability of this inventory was 0.82 indicating high reliability.

Academic Behavioral Confidence (ABC) Scale developed by Sander and Sanders (2003) was validated and used it to measure academic behavioral confidence of student teachers. The ABC scale consists of 17 items. It included four subscales – grade (6 items), studying (4 items), attendance (3 items) and verbalizing (4 items). The scale is a 5-point scale (from 1 = not at all confident to 5 = very confident). The reliability of the Academic Behavioral Confidence Scale was 0.82 and reliabilities of each subscale were 0.71, 0.59, 0.58 and 0.69 respectively. Therefore, the ABC Scale had high reliability to measure academic behavioral confidence of student teachers.

Procedures

The Cognitive Style Inventory and Academic Behavioral Confidence Scale were adapted to Myanmar version. After preparing the questionnaires, face validity and content validity were ensured by twelve experts from the field of educational psychology and educational test and measurement. Based on the valuable suggestions of experts, the wording and phrases of some items were modified since they were inappropriate with student teachers from Myanmar Education Degree Colleges. Before collecting data, pilot study was conducted with a sample of 500 student teachers to assess whether the wording of items and instruction had the clarity in Myanmar version. Based on the results of pilot study, some items were modified. All participants were selected from Education Degree Colleges by the researcher, given a thorough explanation about the study, and asked if they wished to participate in the questionnaire response voluntarily with informed consent.

Results

Cognitive Styles of Student Teachers

In order to identify cognitive styles of student teachers, the norms given by Cognitive Style Inventory (Martin, 1982) were used. The student teachers who scored above 81 on systematic style and below 61 on intuitive style were treated as systematic style. Conversely, the student teachers who scored below 61 on systematic style and above 81 on intuitive style were categorized as intuitive style. Further, the student teachers who scored above 81 on both styles; i.e., systematic and intuitive styles, were considered as integrated style. In opposition to integrated style; the student teachers who scored below 61 on systematic and intuitive styles were taken as undifferentiated style and lastly, the student teachers who scored medium-high score (71-80) on both styles were categorized as split style.

The results of this study indicated that 43.49 % student teachers included in split style, 20.44% student teachers included in undifferentiated style, 29.9% student teachers included in integrated style, 1.77% student teachers included in intuitive style and 4.37% student teachers included in systematic style respectively (see Figure 1). The results indicated that the percentage of student teachers in split style, integrated style and undifferentiated style were higher than that of other styles. It can be concluded that most of the student teachers from education degree colleges possess split style, integrated style and undifferentiated style. The finding of this study

was consistent with the past study of Srinivas and Gangadhar (2015), Biological Science teachers possessed split style, undifferentiated style and integrated style.

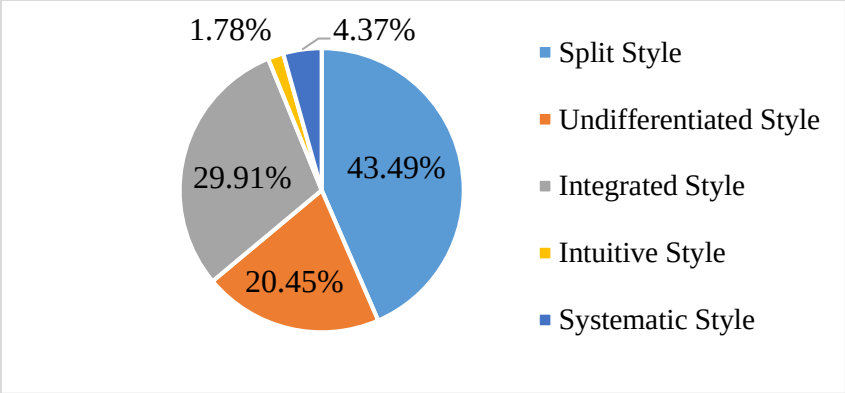

Figure 1 Percentage of Student Teachers' Cognitive Styles

Comparison of Student Teachers' Cognitive Styles by Gender

To examine the relation between cognitive styles and gender, chi-square analysis was conducted (see Table 1).

Chi-square results indicated that there were significant associate between cognitive styles and gender, $\chi 2$ (4, N = 846) = 17.045, p = .002. The percentage of female student teachers who possess split style, undifferentiated style, intuitive style and systematic style were higher than that of male student teachers. The percentage of male student teachers who possess integrated style was higher than that of female student teachers. Therefore, there was a significant association of cognitive styles among the student teachers by gender. This finding was congruent with the findings of earlier study conducted by Balasubramaniam and Rajaguru (2016) in which there was a significant association between cognitive styles of student teachers due to variation in their gender.

Table 1 Chi-square Analysis of Cognitive Styles by Gender

Gender	***N***	**Cognitive Styles**					**$\chi 2$**	***p***
		Split Style	Undifferentiated Style	Integrated Style	Intuitive Style	Systematic Style		
Male	380	144 (39.1%)	76 (43.9%)	140 (55.3%)	6 (40%)	14 (37.8%)	17.045**	.002
Female	466	224 (60.9%)	97 (56.1%)	113 (44.7%)	9 (60%)	23 (62.2%)		
Total	846	368	173	253	15	37		

Note. **p < .01

Comparison of Student Teachers' Cognitive Styles by Subject Combinations

To assess the relation between cognitive styles and subject combinations, chi-square analysis was conducted (see Table 2).

The chi-square results indicated that there was no significantly association between cognitive styles and subject combinations, $\chi 2$ (4, N = 846) = 7. 467, p = .113. The finding of this study was contradicted to the previous study of the effect of senior secondary school students' cognitive styles by Tomar (2017) who indicated that there was a significant difference in cognitive styles by their different streams.

Table 2 Chi-Square Analysis of Cognitive Styles by Subject Combinations

Subject Combination	***N***	**Cognitive Styles**					**$\chi 2$**	***p***
		Split Style	Undifferentiated Style	Integrated Style	Intuitive Style	Systematic Style		
Arts	366	158 (42.9%)	88 (50.9%)	99 (39.1%)	8 (53.3%)	13 (35.1%)	7.467	.113
Science	480	210 (57.1%)	85 (49.1%)	154 (60.9%)	7 (46.7%)	24 (64.9%)		
Total	846	368	173	253	15	37		

Comparison of Student Teachers' Cognitive Styles by Education Degree Colleges

To examine the differences among cognitive styles by Education Degree Colleges, chi-square analysis was conducted.

Chi-square results showed that there were significant association of cognitive styles by Education Degree Colleges, $\chi 2$ (4, N = 846) = 51.778, p = .043 (see Table 3). It was consistent with the finding of Liedtke and Fromhage (2019) that different cognitive styles are adaptive under slightly different conditions.

Table 3 Chi-square Analysis of Cognitive Styles Among EDCs

EDC	***N***	**Cognitive Styles**					**$\chi 2$**	***p***
		Split Style	Undifferentiated Style	Integrated Style	Intuitive Style	Systematic Style		
EDC1	116	52 14.1%	18 10.4%	37 14.6%	3 20%	6 16.2%	51.778*	.043
EDC2	96	43 11.7%	20 11.5%	28 11.1%	3 20%	2 5.4%		
EDC3	125	43 11.7%	29 16.7%	41 16.2%	3 20%	9 24.3%		
EDC4	69	28 7.6%	15 8.7%	20 7.9%	2 13.3%	4 10.8%		

EDC	*N*	Cognitive Styles					χ^2	*p*
		Split Style	Undifferentiated Style	Integrated Style	Intuitive Style	Systematic Style		
EDC5	42	17 4.6%	10 5.7%	14 5.5%	0 0%	1 2.8%		
EDC6	52	27 7.3%	15 8.7%	8 3.2%	2 13.3%	0 0%		
EDC7	114	51 13.9%	29 16.8%	26 10.3%	2 13.4%	6 16.2%		
EDC8	29	12 3.3%	0 0%	17 6.7%	0 0%	0 0%		
EDC9	73	28 7.6%	15 8.7%	28 11.1%	0 0%	2 5.4%		
EDC10	130	67 18.2%	22 12.8%	34 13.4%	0 0%	7 18.9%		
Total	846	368	173	253	15	37		

Note. * $p < .05$, EDC = Education Degree College

Academic Behavioral Confidence (ABC) of Student Teachers

To investigate the student teachers' academic behavioral confidence, descriptive statistics was carried out and results were shown in Table 4.

Table 4 Descriptive Statistics of Academic Behavioral Confidence

	N	*M*	Mean%	*SD*	Minimum	Maximum
Grade	846	23.06	76.86%	2.92	8	30
Verbalization	846	15.55	77.75%	2.37	7	20
Studying	846	15.43	77.15%	2.40	7	20
Attendance	846	12.25	81.16%	1.83	5	15
ABC (Total)	846	66.30	78%	7.32	28	85

Note. *M* = Mean, *SD* = Standard Deviation

By using the descriptive procedure, the mean and standard deviation of academic behavioral confidence were 66.3 and 7.32. Therefore, student teachers from education degree colleges were high in academic behavioral confidence in general. Since the number of items included in each subscale of Academic Behavioral Confidence Scale was not the same, the mean scores were transferred to the mean percentages. The findings of this study indicated that the mean percentage for attendance was the highest and the mean percentage of verbalizing and studying were higher than grade for student teachers (see Table 4). Therefore, student teachers

from education degree colleges attend regularly and are more willing to discuss and to study in the classes.

Comparison of Student Teachers' Academic Behavioral Confidence (ABC) by Gender

To examine the differences of academic behavioral confidence by gender, descriptive statistic was conducted. The mean score of female student teachers was higher than that of male student teachers in academic behavioral confidence (total), grade, verbalization and attendance (see Table 5). To make more detailed investigation on gender differences of student teachers' academic behavioral confidence, independent samples *t*-test was conducted.

Table 5 Means, Standard Deviations, and Independent Samples *t*-test Results of Student Teachers' ABC by Gender

	Gender	***N***	***M***	***SD***	***t***	***df***	***p***
Grade	Male	380	22.74	3.18	-2.787**	844	.007
	Female	466	23.32	2.67			
Verbalising	Male	380	15.63	2.32	0.852	844	.838
	Female	466	15.49	2.41			
Studying	Male	380	15.19	2.75	-2.550***	844	.000
	Female	466	15.63	2.05			
Attendance	Male	380	12.09	1.99	-2.327*	844	.018
	Female	466	12.39	1.67			
ABC(Total)	Male	380	65.66	8.08	-2.262**	844	.003
	Female	466	66.82	6.58			

Note. *p < .05, ** *p* < .01, *** *p* < .001, *M* = Mean, *SD* = Standard Deviation

The result of independent samples *t*-test stated that there were significant differences of academic behavioral confidence (total), *t* (844) = -2.262, *p* = .003, grade, *t* (844) = -2.787, *p* = .007 and studying, *t* (844) = -2.550, *p* < .001 and attendance, *t* (844) = -2.327, *p* = .018 by gender (see Table 5). The results indicated that female student teachers were significantly higher than in ABC (total), grade, studying and attendance than male student teachers. This finding was consistent with the past studies of Sander, Putwain and de la Fuente (2013) that female students were significantly more confident for studying and attendance.

Comparison of Student Teachers' Academic Behavioral Confidence by Subject Combinations

In order to examine the differences of academic behavioral confidence by subject combinations, descriptive statistics were calculated. The means and standard deviations scores of academic behavioral confidence for student teachers with science subject combination and arts subject combination were reported in Table 6. The mean scores of student teachers with science subject combination were slightly higher than that of student teachers with arts subject combination in academic behavioral confidence (total) and its subscales. Again, the independent samples *t*-test was used to examine whether these differences were significant or not.

According to independent samples *t*-test results, there was no significant difference in academic behavioral confidence (total) and its subscales by subject combinations. It was consistent with the previous study of Amirtha and Shalini (2013) that there was no significant difference between the different major subjects. However, it was contradicted with the previous study of Sander and Sanders (2009), ABC scores were the relatively small but significant difference between the medical and psychology students. Therefore, the findings of this study showed that student teachers from education degree colleges put in the same amount of potential to achieve in their specialized subjects.

Table 6 Means, Standard Deviations, and Independent Samples t-test Results of ABC by Subject Combinations

	Subject Combination	***M***	***SD***	***t***	***df***	***p***
Grade	Arts	22.80	2.92	-2.226	844	.836
	Science	23.25	2.91			
Verbalizing	Arts	15.52	2.46	-.324	844	.454
	Science	15.57	2.30			
Studying	Arts	15.33	2.34	-1.069	844	.151
	Science	15.51	2.44			
Attendance	Arts	12.19	1.78	-.593	844	.200
	Science	12.31	1.86			
ABC (Total)	Arts	65.84	7.10	-1.592	844	.297
	Science	66.64	7.46			

Comparison of Student Teachers' Academic Behavioral Confidence by Education Degree Colleges

According to descriptive statistics, the mean scores of student teachers from EDC 2, EDC 8 and EDC 10 were higher in academic behavioral confidence (total) than that of other EDCs. The mean scores of student teachers from EDC 1, EDC2, EDC8 and EDC 10 were higher in grade than that of other EDCs whereas the mean scores of student teachers from EDC 3, EDC 8 and EDC10 were higher than in verbalizing that of other EDCs. The mean scores of student teachers from EDC 2, EDC 8 and EDC 10 were higher in studying than that of other EDCs whereas the mean score of student teachers from EDC10 was higher than that of other EDCs in attendance.

In order to examine whether student teachers were different in academic behavioral confidence with respect to the EDCs, one-way Analysis of Variance (ANOVA) was conducted. ANOVA results indicated that there were significant differences of academic behavioral confidence (total), F (9, 836) = 6.597, $p < .001$, grade, F (9, 836) = 4.674, $p < .001$, verbalizing, F (9, 836) = 2.598, $p = .006$, studying, F (9, 836) = 4.319, $p < .001$ and attendance, F (9, 836) = 11.919, $p < .001$, by Education Degree Colleges (see Table 7).

Table 7 Means, Standard Deviations, and ANOVA Results of Student Teachers' ABC by Education Degree Colleges

	EDC	***N***	***M***	***SD***	***F***	***p***
Grade	EDC 1	116	23.34	3.22	4.674***	.000
	EDC 2	96	23.78	2.87		
	EDC 3	125	22.80	3.02		
	EDC 4	69	22.83	2.83		
	EDC 5	42	22.81	2.03		
	EDC 6	52	22.06	2.99		
	EDC 7	114	22.56	2.87		
	EDC 8	29	24.55	2.26		
	EDC 9	73	22.12	2.67		
	EDC 10	130	23.75	2.78		
Verbalizing	EDC 1	116	15.55	2.46	2.598**	.006
	EDC 2	96	15.80	2.20		
	EDC 3	125	15.88	2.38		
	EDC 4	69	15.58	1.95		
	EDC 5	42	15.71	2.57		
	EDC 6	52	14.60	2.77		
	EDC 7	114	14.96	2.35		
	EDC 8	29	15.97	1.52		
	EDC 9	73	15.38	2.06		
	EDC 10	130	15.88	2.53		
Studying	EDC 1	116	15.63	2.34	4.319***	.000
	EDC 2	96	16.06	2.00		
	EDC 3	125	14.92	2.81		
	EDC 4	69	15.52	1.94		
	EDC 5	42	15.62	2.23		
	EDC 6	52	15.08	2.19		
	EDC 7	114	15.11	2.30		
	EDC 8	29	16.45	1.90		
	EDC 9	73	14.51	2.64		
	EDC 10	130	15.90	2.40		
Attendance	EDC 1	116	12.32	1.70	11.919***	.000
	EDC 2	96	12.56	1.62		
	EDC 3	125	12.34	1.73		
	EDC 4	69	12.30	1.37		
	EDC 5	42	12.43	1.51		
	EDC 6	52	12.10	1.56		
	EDC 7	114	12.04	1.84		
	EDC 8	29	12.34	1.69		
	EDC 9	73	10.49	2.45		
	EDC 10	130	13.02	1.55		
Academic Behavioral Confidence (Total)	EDC 1	116	66.84	7.92	6.597***	.000
	EDC 2	96	68.21	6.84		
	EDC 3	125	65.94	7.82		
	EDC 4	69	66.23	6.66		
	EDC 5	42	66.57	6.45		
	EDC 6	52	63.83	7.39		
	EDC 7	114	64.67	7.20		
	EDC 8	29	69.31	5.05		
	EDC 9	73	62.51	5.67		
	EDC 10	130	68.55	7.11		

Note. *** $p < .001$, *M* = Mean, *SD* = Standard Deviation, EDC = Education Degree College

Moreover, for more detailed analyses, post-hoc test analysis method was conducted by Tukey HSD multiple comparison procedure for education degree colleges. According to Tukey HSD test results, in ABC (total), the mean score of student teachers from EDC 2 was significantly higher than that of student teachers from EDC 6 and EDC 7. The mean scores of student teachers from EDC 8 and EDC 10 were significantly higher than that of student teachers from EDC 6 and EDC 9 in ABC (total). The mean score of student teachers from EDC 10 was higher than that of student teachers from EDC 7 in ABC (total). Moreover, the mean scores of student teachers from EDC 1, EDC 2 and EDC 3 were significantly higher than that of student teachers from EDC 9 in ABC (total).

According to the Turkey HSD test, there were significantly different in grade, verbalizing and studying. In grade, the mean score of student teachers from EDC 2 was higher than that of student teachers from EDC 6 and EDC 9 and the mean scores of student teachers from EDC 8 and EDC 10 were significantly higher than that of student teachers from EDC 6 EDC 7and EDC 9 in grade. In verbalizing, the mean scores of student teachers from EDC 3 and EDC 10 were significantly higher than that of student teachers from EDC 6. In studying, the mean scores of student teachers from EDC 2 and EDC 8 were significantly higher than that of student teachers from EDC 3. Moreover, the mean scores of student teachers from EDC 1, EDC 2, EDC 8 and EDC 10 were significantly higher than that of student teachers from EDC 9. In attendance, the results indicated that the mean score of EDC 9 was the lowest among EDCs whereas the mean score of student teachers from EDC 10 was higher than that of student teachers from EDC 1, EDC 6 and EDC 7.

Comparison of Academic Behavioral Confidence by Cognitive Styles

To find out reflective learning and academic behavioral confidence by cognitive styles, multivariate analysis of variance was undertaken. The results of ANOVA showed that there was statistically significant difference in academic behavioral confidence in accordance with cognitive styles. There were significant differences of academic behavioral confidence F (4, 841) = 21.30, $p < .001$ by cognitive styles (see Table 8).

Again, notably, post-hoc comparisons using Tukey HSD tests indicated that student teachers with integrated style and systematic style were higher in academic behavioral confidence than student teachers with split style, undifferentiated style and intuitive style. Student teachers with split style were higher in academic behavioral confidence than student teachers with undifferentiated style and intuitive style (see Table 9).

Table 8 ANOVA Results of Academic Behavioral Confidence (ABC) by Cognitive Styles

	Cognitive Styles	***M***	***SD***	***F***	***p***
Academic Behavioral Confidence	Split Style	66.25	5.93	22.30***	.000
	Undifferentiated Style	63.05	8.39		
	Integrated Style	68.38	7.09		
	Intuitive Style	59.20	8.24		
	Systematic Style	70.51	7.84		

Note: ***$p < .001$

Table 9 Results of Tukey HSD Multiple Comparison for Reflective Learning and Academic Behavioral Confidence by Cognitive Styles

Dependent Variable	Cognitive Style (I)	Cognitive Style (J)	*MD*(I-J)	*p*
Academic Behavioral Confidence	Split Style	Undifferentiated Style	3.20***	.000
		Intuitive Style	7.05**	.001
	Integrated Style	Split Style	2.13**	.002
		Undifferentiated Style	5.33***	.000
		Intuitive Style	9.18***	.000
	Systematic Style	Split Style	4.26**	.004
		Undifferentiated Style	7.46***	.000
		Intuitive Style	11.31***	.000

Note. ** $p < .01$, *** $p < .001$

Discussion

The percentage of student teachers in split style, integrated style and undifferentiated style were higher than other styles. It can be concluded that most of the student teachers from education degree colleges possess split style, integrated style and undifferentiated style. It may be assumed that the characteristics of systematic style and intuitive style were extremes in continuum but split style, undifferentiated style and integrated style were comprised with respective degrees of these two extremes. Previous studies of cognitive styles asserted that the need to use each of the bipolar elements of the systematic style and intuitive style (either by combining or alternating between them) in order to generate greater performance, productivity, and creativity (Wonder & Donovan, 1981). Therefore, it can be concluded that possessing split style, integrated style and undifferentiated style are good and it can increase performance, productivity, and creativity.

Regarding cognitive styles, the percentage of female student teachers who possessed split style, undifferentiated style, intuitive style and systematic style were higher than that of male student teachers. The percentages of male student teachers who possessed integrated style were higher than that of female student teachers. Therefore, male student teachers had double quick ability to generate a proactive approach to problem solving. The results of this study indicated that there was no significant difference of cognitive styles by subject combinations. The findings of this study were contradicted to the findings of Martinsen and Furnham (2019) that the cognitive styles of students could be influenced by the implementation of different learning situations from different subjects. The results of this study showed that there were significant differences in cognitive styles by Education Degree Colleges. It can be assumed that the environment and culture of EDC can influence on student teachers.

Regarding academic behavioral confidence, gender difference was found in which female student teachers were significantly higher than male student teachers. It can be interpreted that female student teachers spent more time on studies, more self-disciplined to get higher grades, paid full attention in class and showed a more responsive attitude towards class activities. There was no significant difference in academic behavioral confidence by subject combinations. It may be due to the fact that student teachers put in the same amount of potential to achieve in their specialized subjects. They were very much aware that it was the crucial period in their life which could determine in their career ranks such as primary assistant teachers or senior assistant

teachers in future. The results indicated that ABC and its subscales were significantly different in EDCs. It can be assumed that attitude or perception of student teachers on academic environment or subjects can influence on academic behavioral confidence of student teachers. Moreover, variations of teaching learning strategies from teacher educators and creating conducive learning environment by administrations may also influence on academic behavioral confidence of student teachers.

In the comparison of academic behavioral confidence by each cognitive style, Tukey HSD tests indicated that student teachers with integrated style and systematic style are higher in academic behavioral confidence than student teachers with split style, undifferentiated style and intuitive style. Therefore, student teachers with integrated style were active, alert, and high in participation and involvement in discussions and activities. They had strong attitude for their actions. Student teachers with systematic style used well-defined method or overall plan for studying, concrete facts or figures, created lists what should do and were logical and rational. Therefore, it was proved that student teachers with integrated style and systematic style had a greater extent of academic behavioral confidence than other cognitive styles.

The result of this study indicated that student teachers with split style were higher in academic behavioral confidence than student teachers with undifferentiated style and intuitive style. According to Martin (1982), a person with split style had approximately equal degrees of systematic and intuitive and he consciously responded to learning situation by selecting appropriate style. A person with intuitive style is associated with a spontaneous, holistic and visual approach and generally viewed as “bad” when a value is assigned. A person with undifferentiated style relied heavily on rules, suggestions and had difficulty in making decisions. Therefore, this finding was possible and reasonable in that the extent of confident level in academic behavior of student teachers with split style were higher than student teachers with undifferentiated style and intuitive style.

Conclusion

Therefore, educators need to be able to identify the cognitive styles of their students, prescribe developmental strategies that students can use to enhance their own cognitive styles and to build strength in styles that they do not generally use. They need to be able to recommend personalized educational approaches that is consistent with each cognitive style. Teacher educators from education institutions need to help their student teachers to identify their own cognitive styles and to understand the benefits as well as the drawbacks of all cognitive styles. They also need to be able to notice how to create conducive learning environment, which teaching learning strategies should be used and learning activities that are appropriate for each cognitive style to be high in academic behavioral confidence.

Limitation and Future Research

This study recruited only student teachers from Education Degree Colleges. It should be included student teachers from Universities of Education to be more representative. This study was a cross sectional study and the results should be interpreted carefully. Longitudinal studies should be carried out to understand the improvement of academic behavioral confidence of student teachers in accordance with cognitive styles in future study.

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