Exploring the Correlation between Thinking Styles and Social and Academic Integration in English Major Students

Nur Güneş Uçar[1], Özkan Kırmızı[2]
[1]Başkent University
[2]Karabük University

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Nur Güneş Uçar[1*], Özkan Kırmızı[2]
[1]Başkent University
Orcid ID: 0000-0001-9146-3964
[2] Karabük University
Orcid ID: 0000-0003-3419-8257

Abstract

In educational psychology, individual differences have always received remarkable attention, with attention increasing in mental aspects such as thinking styles in recent years and with implications for teaching and learning. The aim of the present study is to investigate the possible connection between thinking styles and academic and social integration. It is well-known that psychological constructs like thinking styles play a role in certain behaviors or preferences and studying them can shed light on the educational process. The present study was conducted with 79 pre-service EFL teachers, all of whom are 4th grade learners. One reason for having 4th grade learners is that they have well-established ideas and attitudes towards academic and social integration. In order to collect data, two questionnaires were used. The first one is the *Thinking Styles Inventory* (TSI), developed by Sternberg and Wagner (1991). It is a comprehensive tool containing 104 items. There are 13 subscales, with 8 items each. The second tool is the *Academic and Social Integration Scale*, developed by Pascarella & Terenzini (1980). It contains 5 sub-dimensions, peer-group interaction, interactions with faculty, faculty concern for student development & teaching, academic & intellectual development, and institutional and goal commitments. The findings of the study indicate that the most common thinking styles are oligarchic, executive, and liberal thinking style while the least common thinking styles are conservative and hierarchical thinking style and it was the liberal thinking styles that mostly correlated with academic and social integration.

Keywords: Thinking styles, academic and social integration, higher education, English major students

INTRODUCTION

As one of the critical components of individual differences in psychology, thinking styles have received considerable attention in educational studies in recent years. It was the American psychologist Robert Sternberg, who put forward the idea of thinking styles in 1988, the theory becoming known as "mental self-government", where he suggested that one could control or manage his or her daily activities in many different ways, referred to as "thinking styles".

In Turkish context, with the recent proliferation of universities, the number of students attending university increased exponentially. Based on the statistical values of Turkish Higher Education Council, the number of universities is 205, including both state and private universities. The number of students attending to undergraduate programs is 4.538.926, a huge number. Therefore, the issue of academic and social integration is a major issue in today's universities.

One of the most well-known and most cited models for *academic and social integration* (ASI) is that of Tinto (1975). Tinto proposed that academic success and perseverance hinge on academic and social integration to a large extent, suggesting institutional and personal experiences crucial for academic and social integration. Similarly, the *Integration of international students—a UK perspective* report, issued in 2014 by the British Council, suggested that ASI is crucial not only for academic success but

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[*]Corresponding Author: *Nur Güneş Uçar, Başkent University, Faculty of Science and Letters, English Program of Translation and Interpretation, Research Assistant, ngunesucar@ankara.baskent.edu.tr*

also for internationalization, comprehensive learning, and cultural awareness. This report also suggests that a healthy integration of students affects not only students but also the faculty.

The present study aims at trying to investigate the relation between thinking styles and ASI. To the best of the knowledge of the researchers, there are no or very few studies that focus on the relation between thinking styles and ASI, although thinking styles have been studied in relation to different variables.

Theoretical Background

Thinking Styles

The theory of "mental self-government" was proposed by Sternberg (1997) in an effort to designate thinking styles, with the metaphor "mental self-government" indicating how people mind works. Thinking styles are considered as vital mental abilities for efficient learning to take place as they play a role in individual's decision-making process. Sternberg (1997) put forward that thinking styles are not an aptitude; instead, they are the preferences to use aptitude, indicating that a thinking style is about choices. Thinking styles are seen as "preferred way of thinking" (Yong, 2012, p. 63). To be more particular, they imply "what a person prefers to do and how he/she likes to do it" (Betoret, 2007, p. 220). There are 13 thinking styles categorized into 5 groups proposed by Sternberg: function (legislative, executive and judicial), form (monarchic, hierarchic, oligarchic, anarchic); level (global and local); scope (internal, external); and leaning (liberal, conservative). These are as follows:

It is also possible to categorize thinking styles in three groups (Zhang, 2004).

1. Type 1 includes legislative, judicial, hierarchical, global, and liberal styles. These are related to thinking styles that generate creativity and that denote high levels of cognitive complexity.
2. Type 2 includes executive, local, monarchic, and conservative styles. These are related to doing things that favor the norm and are more simplistic.
3. Type 3 includes anarchic, oligarchic, internal, and external styles. These thinking styles combine aspects from the 1 and 2 type of thinking styles.

Research indicates that Type 1 styles are positively correlated with high cognitive developmental levels, holistic modes of thinking, and an open personality (Zhang, 2002, 2004). On the other hand, Type 2 thinking styles are related with low self-esteem, low cognitive developmental levels, analytic modes of thinking, and the personality trait of neuroticism. On the part of teachers, studies indicate that Type 1 teaching styles tend to correspond with student-focused teaching while a knowledge transmission teaching is observed in Type 2 thinking styles (Zhang, 2004).

Thinking styles are learned over time within the influence of culture, parenting styles, schooling, or occupation. Moreover, Buluş (2016) suggests that they are teachable, measurable and variable across tasks and situations. This indicated the dialogic aspect of thinking styles, implying that they are affected by environmental factors (Sternberg, 1997).

Sternberg claims that people tend to organize their daily activities based on their thinking styles. Yet, thinking styles should not be viewed as fixed constructs; rather, they are preferences, not abilities (Sternberg, 1997; Lee & Tsai, 2004). This means that such styles may change based on the situation (Apaydin & Cenberci, 2018). Another important point is that it is possible to teach, measure, and change thinking styles (Zhang, 2002; Dinçer, 2009). Thus, teachers or practitioners may benefit from the findings of studies conducted on thinking styles, and according to Lee and Tsai (2004), what matters is to provide conducive environments for various thinking styles.

Within the scope of Sternberg's (1993) framework, the legislative thinking style is relevant to acts of creation, imagination, and plans; the executive function is pertinent to practices of implementation

and fulfilment; and the judicial function is related to actions of judgements, evaluations, and comparisons. The oligarchic thinking style presents more than one purpose being of equal importance, while the monarchic one is identified by a choice of tasks and situations that require to be emphasized on only one component or aspect of that component up to its ending. The other one called as hierarchic thinking style that provides more than one purpose by allowing every one purpose to be of a different importance, although the anarchic thinking style is described by a choice of activities bringing about immense flexibility of manners. At this point, the local style leads to a choice of tasks, projects, and situations requiring some connection with particular and tangible details. On the contrary, the global style is relevant to a choice of problems that may occur in nature in a general sense and require thinking conceivably.

In regard to government, there appear two domains as being internal and external affairs in the same way with the matter of mental self-government. The internal style is related to a choice of projects, duties, or cases that highlight working individually. On the other hand, the external style involves a choice of exercises that require works and interactions with other individuals. Finally, the two leanings of government assert that individuals differentiate in their commitment to preceding rules or formations on the level of mental liberalism and conservatism. The liberal thinking style is relevant to a choice of duties and projects lying beyond prevalent rules, methods and settings leading to substantial differentiation, while the conservative thinking style is identified with a choice of duties, projects, and settings depending upon the commitment to existing rules and formations (Grigorenko & Sternberg, 1995).

Social and Academic Integration

Currently, universities occupy an important place not only as academic centers but also for social and academic integration of university students. The opportunities and possibilities of social and academic integration enable students to contribute to their own social development, affect their perseverance of higher education, help student realize their potentials, and enhance their social skills. Glass and Westmont (2014) suggest that a favorable integration of the student paves the way for effective socio-cultural adaptation and better functioning in the unfamiliar setting.

The earliest and the most prominent academic and social integration model is that of Tinto's (1975), which holds that academic success is primarily predicted by not only institutional factors but also by students' own commitments. Institutions are supposed to work for the benefit of students' well-being and thus their social interaction to support academic success. Tinto's model views institutional and personal experiences central to academic and social integration, implicitly suggesting that students' perseverance is dependent on academic and social integration, which is partially justified in literature (Severiens et al. 2006; Severiens &Wolff 2008).

The most significant point in Tinto's model is that every university student has social, cultural and individual differences and these differences adjust their relationship with education and their expectations from the university fundamentally (Mannan, 2007). Tinto (1975, 1998) evaluates every single student as a different piece of the puzzle and takes their personal experiences, competences, skills, values, and family and community backgrounds into consideration. From his perspective, students are to continue with their education life in an attempt to graduate and besides, they are to play a part among other students around them not only inside but also outside of the common learning atmosphere. In a general sense, academic integration comprises of a process on which the individual and the system evaluate each other at the same time, and this brings about adjustment and identification with the standards of the academic system (Tinto, 1975).

Social integration develops with the help of the social and individual atmosphere and also interaction between and among students, institution and administrative divisions (Tinto, 1975, p. 107). Some researchers indicate that integration has two main branches, formal and informal, and their differences are also to be considered. According to this, academically formal integration refers to integration with

classes and educational institution; whereas informal integration is related to relationships with teachers and relationships established in other environments apart from the learning environment at university. The formal model of social integration occurs when making contact with friends or groups within the scope of educational issues. On the other hand, the informal one of this type is associated with participation in student activities (Severiens & Schmidt, 2008). Generally being interrelated, social and academic integration can also improve separately.

Enabling academic conversations and starting relevant discussions among the students of the same age can pave the way for better academic achievement and this kind of communication with peers can be promoted by attending lessons on a regular basis. On the other hand, it is also quite possible that some students who are socially well integrated do not show a great performance in academic sense or vice versa (Tinto, 1975). In addition to that, it is pointed out that the students who have been able to adapt themselves to the university socially and academically interrupt their university education less likely than other students do (Yorke & Longden, 2004; Lang, 2001). However, social and academic integration do not contain sufficient support and encouragement for students' continuity with their education process separately.

Literature Review

As for thinking styles, it can be said that it has produced various insights, focusing on the correlation between thinking styles and a number of variables. Tuzer's study (2016), for example, handles the issue of thinking styles in terms of age, gender, educational background. The results did not find any statistically significant relation. However, Khosravie (2010) reported gender differences in terms of legislative, executive, and judicial thinking styles. In order to see the relation between thinking styles and learning styles, Çelik (2016) studied 11th grade students and found that judicial thinking styles correlated with organizational skills and global thinking style correlated with monitoring comprehension strategies.

Another interesting finding is reported by Zhang and Sternberg (2000). They indicated that thinking styles related to creativity (legislative, judicial, hierarchical, global, and liberal) had significantly negative correlations with academic achievement while thinking styles that required conformity (executive, conservative, monarchic, and local) correlated with academic achievement.

Extensive research has focused on the relationship between academic achievement and thinking styles (Bernardo, Zhang, & Callueng, 2002; Cano-Garcia & Hughes, 2000; Zhang, 2000; Zhang & Sternberg, 2000). Nazarifar et al (2011), for example, focused on thinking styles and academic achievement and discovered that psychology and educational sciences students ranked high in terms of executive thinking styles while engineering students ranked high in terms of legislative thinking styles. Zhang's study (2004) indicated that thinking styles were more influential than other factors included in that study in academic success.

Moreover, Fan et al. (2010) also reported compatible findings, showing that thinking styles predicted academic achievement more than personality traits and motivation in hypermedia-based learning environments. Workman (2004), also, discovered a correlation between global thinking style and better performance in computer-aided education. Finally, Cano-Garcia and Hughes's (2000) study figured out that executive, and internal styles best predicted academic achievement among the students of a Spanish middle school, whereas the legislative thinking style was negatively correlated with academic success. Literature also shows that thinking styles produce more precise results in terms of academic achievement compared to other variables like ability or personality (Fan et al., 2010; Zhang & Sternberg, 2000).

In another relevant study, Öztürk (2017) studied language teachers' and learners' preferences for thinking styles in EFL classrooms. The results of that study indicated that both EFL teachers and students have a similar order, with the legislative thinking styles the highest. Another important

finding of the study was that the participants did not vary in thinking styles in terms of age or teaching experience. What is more, the study did not report any correlation between academic achievement and thinking styles. However, according to another study, conducted by Betoret (2007), thinking styles determine students' course satisfaction and engagement.

The construct of academic and social integration has been studied from different perspectives and in relation to different variables. Research clearly shows that social interaction in the form of social networks or other means have a contribution to the learning process (Zepke & Leach, 2005; Zhou, et al., 2008). Significant research has been devoted to this topic with the purpose of enabling social and academic integration for university students, especially in developed countries. (Bean, 1983; Braxton, 2000; Kuh, 2001-2002; Lang, 2001; Pascarella & Terenzini, 2005; Paulsen & St. John, 1997; St. John, Paulsen & Carter, 2005; Tinto, 1975, 1988, 1993; Aypay, Sever & Demirhan, 2012). In particular, the studies conducted by Tinto laid the foundations of the interaction between individuals and institutions within the frame of students' integration with the university (Bean, 1983; Kuh, Kinzie et. al, 2006; Pascarella & Terenzini, 2005; Tinto, 1975; Aypay, Sever & Demirhan, 2012). The model of social and academic integration suggested by Tinto has been applied mostly in relevant studies. Nevertheless, there do not seem to be any studies on the relation between thinking styles and academic and social integration.

Kember and Leung (2005) conducted a large-scale study on university students in Hong Kong. Although Tinto's model was not directly at the background of the study, it found evidence supporting Tinto's model, as was interpreted by Severiens and Schmidt (2009). In particular, the study found that elements of active learning to teaching and learning led to effective teacher-students interaction, enabling students to enhance their academic integration. As Glass and Westmont (2014) also reported a close relationship between a feeling of belonging for one's university and academic success.

Research Questions:
1. What are the prevalent thinking styles for pre-service EFL teachers?
2. What is the level of academic and social integration on the part of pre-service EFL teachers?
3. Is there a statistically significant correlation between thinking styles and academic and social integration at tertiary level?

METHOD

In order to answer the proposed research questions, the present study sticks to quantitative research paradigm. It is descriptive and correlational in nature.

Data Collection Tools

Two data collection tools were used in the study. The first one is the *Thinking Styles Inventory* and the other is *Academic and Social Integration Scale*.

Thinking Styles Inventory (TSI): This inventory was designed by Sternberg and Wagner (1991). It is a comprehensive tool containing 104 items. There are 13 subscales (given below), with eight items each. TSI is mainly based on the earlier theory of mental self-government by Sternberg (1997). It is a self-report inventory designed to assess five dimensions of mental self-government: functions, forms, levels, scope, and leanings. Participants rated themselves based on 5-point Likert type.

Academic and Social Integration Scale (ASSIC): This scale was developed by Pascarella & Terenzini (1980) and contains 3 broad categories, with 5 sub-dimensions in total. The 3 broad categories are *social integration, academic integration,* and *institutional and goal commitment.* The sub-dimensions are *peer-group interaction, interactions with faculty, faculty concern for student development & teaching, academic & intellectual development,* and *institutional and goal commitments.*

Reliability Analysis

The reliability analysis of the research tools is given in Table 1. The negative items have been reversed. In the Institutional and goal commitments dimension, three of the items were reversed. As it can be seen in Table 1, the general reliability level for TSI was calculated as ,890 and for ASSIC ,903. The total reliability level was ,890, indicating a high level of reliability.

Table 1. Reliability analysis

variable	Number of items	Cronbach's alpha value
Academic and Social Integration Scale (ASSIC)	*30*	*,820*
Peer- group interactions	7	,434
Interactions with faculty	5	,569
Faculty concern for development	5	,700
Academic and intellectual development	7	,644
Institutional and goal commitments	6	,663
Thinking styles inventory	*102*	*,903*
General	**132**	**,890**

Participants

The participants were 79 pre-service EFL teachers, all of whom are 4th grade learners and study at Karabuk University. The number of female students was 52 (65,8%) and male students was 26 (32,9%). The reason why 4th grade students was selected is that they have well-established ideas and attitudes towards academic and social integration.

Construct Validity

As a valid construct, thinking styles were first suggested by Robert Sternberg in 1988 to the literature. It was subsequently titled as "mental self-government" theory, where Sternberg claimed that individuals could supervise and control thinking processes, which are academically known as "thinking styles". To be more concise, thinking styles began to be known as "what a person prefers to do and how he/she likes to do it" (Betoret, 2007, p. 220).

Mental self-government theory has been investigated by means of inventories. Research on this area has produced interesting findings with implications for teaching and learning (Grigorenko & Sternberg, 1997; Zhang & Sternberg, 2001). For decades, thinking styles have been widely adopted as an attractive research area notably in the field of educational psychology.

As the second construct investigated in the present study, ASI has also been a point of interest by researchers and thus has become a legitimate area of study today, in large part due to the increasing number of universities and students in the world.

FINDINGS

In this section, first of all descriptive statistics about thinking styles and academic and social integration are presented. Then, correlation and regression analyses are given. Table 2 presents the general overview of findings as to academic and social integration.

Table 2. Descriptive statistics about sub-dimensions of academic and social integration

Variables	Low		Moderate		High	
	F	*%*	*f*	*%*	*F*	*%*
Peer group interactions	30	38,9	11	13,9	36	45,6
Interactions with faculty	25	31,6	16	20,3	36	45,6
Faculty concern for development	31	39,2	12	15,2	34	43,0
Academic and intellectual development	37	46,8	15	19,0	23	29,1
Institutional and goal commitments	34	43,5	14	17,9	30	38,4

Table 3 indicates that the participants rated the following sub-sections high: (1) peer group interactions high (45,6%), (2) interactions with faculty (45,6%), and (3) faculty concern for development (43,0%). However, the participants rated the following items low: (1) academic and intellectual development low (46,8%) and (2) institutional and goal commitments (43,5%). The sub-dimensions of academic and social integration were analyzed in detail. The results are presented below.

Table 3. Descriptive statistics about *peer group interactions*

	N	Min	Max	Mean	Result
1. Since coming to this university I have developed close personal relationships with other students	77	2,00	5,00	**4,1558**	**Agree**
2. The student friendships I have developed at this university have been personally satisfying.	77	1,00	5,00	**3,9221**	**Agree**
3. My interpersonal relationships with other students have had a positive influence on my personal growth, attitudes, and values.	77	1,00	5,00	2,8961	Disagree
4. My interpersonal relationships with other students have had a positive influence on my intellectual growth and interest in ideas	77	1,00	5,00	**3,8442**	**Agree**
5. It has been difficult for me to meet and make friends with other students.	77	1,00	5,00	2,1818	Disagree
6. Few of the students I know would be willing to listen to me and help me if I had a personal problem.	77	1,00	5,00	**3,5455**	**Agree**
7. Most students at this university have values and attitudes different from my own.	77	1,00	5,00	**3,8442**	**Agree**
Total				3,4842	

The findings related to *peer group interactions* are presented in Table 3. As we can understand from the findings, the participants seem to have established close personal relationships (M=4,155) and they stated that their personal relationships with peers in that university were personally satisfying (M=3,9221). What is more, the participants also agreed that their relationships with their friends facilitated their intellectual development (M=3,8442) and that their friends would be willing to help them in cases of personal problem (M=3,5455). Finally, the participants also stated that other students had different values and attitudes in their university (M=3,8442).

On the other hand, the participants disagreed that their personal relationships with others would have a positive influence on their personal growth, attitudes, and values (M=2,8961) and that it would be difficult for them to meet and make friends (M=2,1818).

Table 4. Descriptive statistics about *interactions with faculty*

	N	Min	Max	Mean	Result
1. My non-classroom interactions with faculty have had a positive influence on my personal growth, values and attitudes	77	1,00	5,00	**3,9091**	**Agree**
2. My non-classroom interactions with faculty have had a positive influence on my intellectual growth and interest in ideas	77	2,00	5,00	**3,9091**	**Agree**
3. My non-classroom interactions with faculty have had a positive influence on my career goals and aspirations	77	1,00	5,00	**3,8571**	**Agree**
4. Since coming to this university, I have developed a close, personal relationship with at least one faculty member.	77	1,00	5,00	3,1039	Disagree
5. I am satisfied with the opportunities to meet and interact informally with faculty members	77	1,00	5,00	2,9351	Disagree
Total	77			3,5428	

Table 4 presents the descriptive statistics regarding *interactions with faculty*. As we can see from the table, the participants believe that their non-classroom interactions with faculty have a positive influence on their personal growth, values and attitudes (M=3,9091), on their intellectual growth and interest in ideas (M=3,9091), and on their career goals and aspirations (M=3,8571). On the other hand, the participants disagreed that they had close personal relationships since they started their university (M=3,1039). The participants also stated that they were not satisfied with the opportunities in meeting and interacting informally with faculty members (M=2,9351).

Table 5. Descriptive statistics about *faculty concern for development*

	N	Min	Max	Mean	Result
1. Few of the faculty members I have had contact with are generally interested in students	77	1,00	5,00	3,5195	Disagree
2. Few of the faculty members I have had contact with are generally outstanding or superior teachers	77	1,00	5,00	**3,8961**	**Agree**
3. Few of the faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students	77	1,00	5,00	3,5325	Disagree
4. Most of the faculty members I have had contact with are interested in helping students grow in more than just academic areas	77	1,00	5,00	3,4156	Disagree
5. Most faculty members I have had contact with are genuinely interested in teaching	77	1,00	5,00	**3,7013**	**Agree**
Total	77			3,6130	

Table 5 presents the descriptive statistics regarding *faculty concern for development*. A careful analysis of the table indicates that in general the participants are undecided about their faculties' concern for development (M=3,6130). The participants agreed with only two of the items in this category. As for the first one, the participants stated that few of the faculty members with whom they had contact are generally outstanding or superior teachers (M=3,8961). Secondly, the participants agreed that most faculty members were genuinely interested in teaching (M=3,7013). In contrast, the participants think that few faculty members are really interested in student (M=3,5195), and are willing to spend time outside of class for discussion (M=3,5325). What is more, the participants also reported that faculty members were not interested in helping students grow in more than just academic areas (M=3,4156).

Table 6. Descriptive statistics about *academic and intellectual development*

	N	Min	Max	Mean	Result
1. I am satisfied with the extent of my intellectual development since enrolling in this university	76	2,00	5,00	**3,9079**	**Agree**
2. My academic experience has had a positive influence on my intellectual growth and interest in ideas.	76	1,00	5,00	**4,1184**	**Agree**
3. I am satisfied with my academic experience at this university.	76	1,00	5,00	3,7105	Disagree
4. Few of my courses this year have been intellectually stimulating.	77	1,00	5,00	**3,8312**	**Agree**
5. My interest in ideas and intellectual matters has increased since coming to this university.	77	1,00	5,00	**3,8831**	**Agree**
6. I am more likely to attend a cultural event (i.e., concert, lecture, art show) now than I was before coming to this university	77	1,00	5,00	3,3896	Disagree
7. I have performed academically as well as I anticipated I would	77	1,00	5,00	3,3506	Disagree
Total	75			3,7416	

The statistical results as to *academic and intellectual development* are presented in Table 6. They indicate that participants are rather "undecided" about academic and intellectual development they get in their faculties (M=3,7416). The participants agreed that their academic experience has a positive influence on their intellectual growth and interest in ideas (M=4,1184). They report that they are moderately satisfied with the extent of their intellectual development in their university (M=3,9079). They do not seem to find their courses intellectually stimulating (M=3,8312). Finally, they hardly believe that they their interest in ideas and intellectual matters has increased since coming to university (M=3,8831).

Table 7. Descriptive statistics about *institutional and goal commitments*

	N	Min	Max	Mean	Result
1. I am confident that I made the right decision in choosing to attend this university	77	1,00	5,00	3,6104	Disagree
2. It is likely that I will register at this university next fall.	77	2,00	5,00	**4,0390**	**Agree**
3. It is important to me to graduate from this university	77	2,00	5,00	**3,9870**	**Agree**
4. I have no idea at all what I want to major in	77	1,00	5,00	2,0909	Disagree
5. Getting good grades is not important to me	77	3,00	5,00	**4,3247**	**Agree**
Total	77			3,7251	

The findings as to *institutional and goal commitments* are given in Table 7. These results also indicate that the participants are "undecided" about *institutional and goal commitments* (M=3,7251). They agree that they are not preoccupied with getting high grades (M=4,3287) and they are enthusiastic about graduating from their present universities (M=3,9870). However, they are not confident about their decision of coming to that university (M=3,6104). But still, they disagree that they have no idea about what they want to major in (M=2,0909). Further statistical analysis indicated that there are no gender differences in terms of thinking styles.

Table 8. Descriptive statistics about thinking styles

Variables	Low		Moderate		High		Mean
	f	*%*	*f*	*%*	*f*	*%*	
Legislative	36	45,6	8	10,1	30	38,0	29,4730
Executive	28	35,4	18	22,5	30	38,0	32,7632
Judicial	28	35,4	10	12,7	36	45,6	27,0405
Monarchic	33	41,8	9	11,4	33	41,8	28,3333
Oligarchic	27	34,2	15	19,0	32	40,5	32,4865
Hierarchic	37	46,8	7	8,9	31	39,2	25,6933

Anarchic	34	43,0	10	12,7	30	38	27,8243
Global	34	43,0	4	5,1	37	46,8	27,5067
Local	37	46,8	14	17,7	26	32,9	28,5714
Internal	36	45,6	5	6,3	35	44,3	27,7237
External	36	45,6	8	10,1	30	38	29,9730
Liberal	24	30,7	14	17,7	38	48,1	31,0132
Conservative	36	45,6	7	8,9	33	41,8	25,3289

Table 8 presents the results pertaining to thinking styles. As we can understand from the table, the participants seem to rank high in terms of executive (38%), judicial (45,6%), monarchic (41,8%), global (46,8%), liberal (48,1%), and oligarchic thinking styles (40,5%). The participants ranked low in terms of anarchic (38%), legislative (36%), hierarchic (37%), internal (36%), external (36%) and conservative thinking styles (36%). Descriptive statistics indicated that the most common thinking style was oligarchic thinking style (M=32,4865), followed by executive thinking style (M=32,7632). The third most common thinking style is liberal thinking style (M=31,0132). The least common thinking styles were conservative thinking style (M=25,3289), followed by hierarchical thinking style (M=25,6933).

A careful analysis of the table indicates that the participants ranked high in terms of Type 1 thinking styles, which cover *legislative, hierarchical, global,* and *liberal styles* except for the *judicial thinking style.* Type 1 thinking styles were designated as including creativity and high levels of cognitive complexity. Based on the results, it can be said that the participants have high levels of creativity and cognitive complexity. When it comes to Type 2 thinking styles, the participants ranked high in terms of executive (38%) and monarchic thinking styles (41,8%) while they ranked low in terms of local (46,8%) and conservative thinking styles (45,6%). Now that these thinking styles encompass conformity to norms and doing things for the sake of doing, it can be speculated that conformity is part of the thinking styles of pre-service EFL teachers.

Thinking styles have also been categorized as comprising of 5 main categories, which are *functions, forms, level, scope,* and *leanings.* Under the category of *functions*, there are legislative, executive, and judicial thinking styles. The results showed that the participants ranked high in terms of executive (38%) and judicial thinking styles (45,6%) while they ranked low in terms of legislative thinking styles (45,6%). Therefore, it can be said that the participants do not prefer doing things on their own (legislative) and instead prefer being told what to do (executive). They also tend to prefer tasks that help them analyze, judge, and evaluate things (suicidal). The next category, *forms*, includes monarchic, oligarchic, and hierarchical thinking styles. The participants ranked high in terms of monarchic (41,8%) and oligarchic thinking styles (40,5%) while they ranked low in terms of hierarchic thinking style (46,8%). These results show that pre-service EFL teachers prefer to focus one task at a time (monarchic), and at the same time tend to work on multiple tasks in the service of multiple objectives, without setting priorities. However, they do not seem to be effective at prioritizing tasks and distributing attention to them according to their value (hierarchical). This point is important as it indicates that they may not be able to direct their attention selectively.

With regard to *level*, the participants ranked low in terms of anarchic (43,0%) and local thinking styles (46,8%) and they ranked high in terms of global thinking styles (46,8%). These findings indicate that they may not be able to be flexible about what, where, and how to work (anarchic), focus on concrete ideas (locals). These findings, unfortunately, resonate with the general outlook that students in general fail to have a flexible approach and be able to see the whole picture.

When it comes to *scopes*, there are internal and external thinking styles. The results indicate that the participants ranked low in terms of both internal (45,6%) and external thinking styles (45,6%). In fact, for internal thinking styles the scores seem to be close as 44,3% of the participants also ranked high in terms of these thinking styles. Depending on these results, it can be said that pre-service EFL teachers are generally introverted, reserved people with fewer social connections than others are; as a result, they prefer to work alone and enjoy working independently (internal). Finally, with regard to

leanings, the participants ranked high in terms of liberal thinking style (48,1%), indicating that they prefer to work on tasks that involve novelty and ambiguity.

Correlation Analysis

In order to see the correlation between the variables, namely academic and social integration and thinking styles, correlation analysis was conducted. The results are presented in Table 10 and Table 11. Since the number of thinking styles is big (13), it was not possible to include them in one table. Therefore, the results are presented in two separate tables. Table 9 indicates that there is statistically significant negative correlation between peer-group interactions and oligarchic thinking style (*r = .32, p < .01*). Based on this finding, it can be said that those who prefer to work on multiple tasks without setting priorities do not tend to rank high in peer-group interactions.

Table 9. Correlation analysis

	peer	ınt	facon	Aca	ınstı	legı	exe	juı	mon	olı	hıer
Peer		,366**	,338**	,341**	,325*	-,122	-,227	-,154	,022	-,328**	-,005
Int			,677**	,700**	,431**	,146	-,078	-,071	-,089	-,113	,047
facon				,613**	,596**	-,027	-,148	-,133	-,199	-,191	,090
aca					,511**	,253*	,023	,002	-,016	-,021	-,064
ınstı						,084	,044	,019	-,037	,021	,101
legı							,639**	,438**	,257*	,497**	-,002
exe								,507**	,333**	,623**	-,160
juı									,478**	,555**	-,069
mon										,327**	,116
olı											-,237*
hıer											

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Peer: peer-group interactions, int: interaction with the faculty, facon: faculty concern for development, aca: academic and intellectual development, ınstı: institutional and goal commitments, legı: legislative, exe: executive, juı: judicial, mon: monarchic, olı: oligarchic, hıer: hierarchic

Table 10 indicates the results of correlation analysis. This table shows that there is statistically significant positive and strong correlation between interactions with faculty and local thinking style (*r = .25, p < .01*), internal thinking style (*r = .37, p < .01*), and liberal thinking style (*r = .36, p < .01*). These results show that those who focus on abstract ideas and who can see the general picture tend to have more positive ideas about their relations in their non-classroom faculty interactions. Secondly, the fact that internal thinking style correlates with interactions with faculty show that those who are introverted and reserved and those who prefer to do science or social studies (internal) tend to benefit from their faculty interactions. Finally, when it comes to the correlation between liberal thinking style and interactions with faculty, it can be stated that those who are after novelty also benefit from their interactions with the faculty.

Another statistically significant positive correlation was observed between faculty concern for development and external thinking style *(r = .26, p < .01)* and liberal thinking style *(r = .325, p < .01).* We should remember that those with external thinking style tend to be extroverted, like working in groups, and prefer doing sciences or social studies projects. Hence, when students are extroverted and enjoy in-group studies, they tend to value faculty members more and they expect more from faculty members. Moreover, those who use new strategies to solve problems and want to take place in projects that provide new perspectives (liberal thinking style) tend to value faculty support more. Thus, it can be said that students with external and liberal thinking styles may be able to get more benefit from their faculty members, be it professors or peers. As for *academic and intellectual development*, statistically significant positive correlation was observed with internal thinking style (*r*

= .26, p < .01). Further examination indicated that those who value their own decisions and who prefer solving problems themselves have benefitted from their academic experiences in their faculties. A statistically significant positive correlation was observed between liberal thinking style and *academic and intellectual development* (r = .33, p < .01). It is possible to conclude that students who prefer working on novel projects or tasks tend to value their academic experiences in their faculties.

Table 10. Correlation analysis

	peer	Int	facon	aca	ınstı	anar	glob	loc	ınt	ext	lıb	cons
peer		,366**	,338**	,341**	,325*	-,113	-,058	,010	,091	,034	-,005	,212
ınt			,677**	,700**	,431**	,038	-,212	,250*	,377**	,197	,360**	-,117
facon				,613**	,596**	-,012	-,208	,063	,060	,279*	,253*	-,153
aca					,511**	-,029	-,201	,187	,259*	,175	,330**	-,182
ınstı						,118	,161	,048	,120	,146	,150	,018
anar							,287*	,039	,309**	,234*	-,001	,094
glob								-,212	,034	,457**	-,019	,535**
loc									,441**	-,007	,336**	-,062
ınt										-,050	,347**	,069
ext											,364**	,033
lıb												-,352**
cons												

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Peer: peer-group interactions, int: interaction with the faculty, facon: faculty concern for development, aca: academic and intellectual development, ınstı: institutional and goal commitments, anar: anarchic, glob: global, loc: local, ınt: internal, ext: external, lıb: liberal, cons: conservative.

DISCUSSION

The present study aimed at investigating thinking styles, academic and social integration and the correlation between them. Firstly, the results indicated that the most common thinking styles are oligarchic, executive, and liberal thinking style while the least common thinking styles are conservative and hierarchical thinking style. These findings showed that the participants enjoy solving problems, writing papers on assigned topics, doing artwork from models; build from designs, learned assigned information (executive). They tend to devote sufficient time to reading comprehension items with a preference on doing multiple tasks without setting priorities (oligarchic). Finally, the participants were found to like working on tasks that involve novelty and want to figure out how new things work (liberal). On the other hand, the participants ranked low in terms of hierarchical and conservative thinking styles, indicating that they tend to fail in prioritizing tasks and distribute their attention according to value. Learners must be instructed in this regard because being able to prioritize certain actions in the process is a highly importance skills. Finally, the participants reported that they do not generally like working on traditional tasks that follow similar rules (conservative).

The study found that the participants ranked high in terms of executive, judicial, monarchic, global, liberal, and oligarchic thinking styles. These findings indicate that the participants are careful to use the proper method to solve any problem (executive), enjoy work that involves analyzing, grading, or comparing things (judicial), use any means to reach their goals (monarchic). They also want to locate themselves in the general picture as they are doing a task (global), like situations where they can try new ways of doing things (liberal) and tend to do several things at a time (oligarchic).

As for other thinking styles, the participants ranked low. These are anarchic, legislative, hierarchical, internal, external, and conservative thinking styles. In particular, pre-service EFL teachers do not do

whatever occurs to them (anarchic), do not set priorities for the things they need to do before taking action (hierarchic), do not only use their own ideas when discussing or writing (internal), but want to work in projects that involve working together (external). Moreover, they also tend to stick to standard rules or ways of doing things (conservative).

Moreover, the findings indicated that pre-service EFL teachers ranked high in terms of Type 1 thinking styles, implying that they have a satisfactory level of creativity and high levels of cognitive complexity. The role of cognition is diverse domains of language learning is emphasized in literature (Irgatoğlu, 2018). In addition, the participants also ranked high in terms of some Type 2 thinking styles, notably executive and monarchic thinking styles, indicating that conformity is also an important element in the thinking styles of pre-service EFL teachers. No gender difference was observed in terms of thinking styles. However, there are studies that point at gender differences. For example, Zhang (2002) showed that male learners tend to have more legislative styles. Turki (2012) reported a similar finding from Jordan, where female participants had more executive thinking whereas male participants were more oriented to legislative thinking. Another recent study found that female learners tend to have more executive styles and male learners have more judicial thinking styles (Emamipour & Shams-Esfandabad, 2013).

When it comes to academic and social integration, the results of the study indicated that the participants ranked high in terms of *peer group interactions* and *interactions with faculty and faculty concern for development.* Regarding the findings related to *peer group interactions*, it is notable to state that the relationships that the participants established with other students had a facilitative role in their intellectual development and the students they know would be ready for helping them when there appeared any personal problem. Furthermore, as far as the findings clarify, it can be said that the participants were aware of the fact that the values and attitudes of some students differed from theirs in that university. However, considering the findings, it is possible to utter that the personal relationships of the participants with other students did not affect their personal growth, attitudes, and values in a positive way. On the other hand, as for the other point, it can be stated that they did not agree that it would be challenging to make and meet other students.

When the findings about *interactions with faculty* are taken into consideration, it is clear that the participants consider that the non-classroom interactions they had with faculty affected not only their personal growth, values and attitudes but also their intellectual growth and interest in ideas in a positive way. What is more, they agreed that these interactions provided positive effects on their career goals and aspirations. Nonetheless, the participants did not assess their personal relationships they have had with faculty members as close. In addition, they asserted that the opportunities in meeting and interacting with faculty members informally were not satisfying.

According to the findings referring to *faculty concern for development*, it can be stated that the participants had an unclear tendency in agreeing on their faculty's concern for development on a general basis. Only two items within this section were agreed by the participants. According to these items, the participants believe that the faculty members they had contact with were generally outstanding or superior teachers and most faculty members were genuinely interested in teaching. Nevertheless, the participants do not consider that a great number of faculty members are actually interested in student and are there for spending time in another place different from their classes to discuss some issues. Furthermore, as the participants stated, faculty members were not concerned about assisting students for their development in more than just academic areas.

As for the results related to *academic and intellectual development,* it is possible to assert that the statements of the participants can be evaluated as unclear. They believe that their academic experience affected their intellectual growth and interest in ideas in a positive way and they consider the extent of their intellectual development in their university as relatively satisfying. However, they do not assess their courses intellectually stimulating and according to their statements, their interest in ideas and intellectual matters has not increased since the day when they came to this university.

When the findings regarding *institutional and goal commitments* are considered, it can be stated that the participants showed a vague tendency in this issue. They believe that it is not significant for them to get good grades, but they find significant to graduate from that university. On the other hand, they are not confident that they made the right decision in choosing to come to that university. However, they do not agree that they have no idea about what they want to major in.

However, the academic and intellectual development together with goal commitments sub-dimensions were found to be low, meaning that pre-service EFL teachers do not fully make use of their faculties for academic and intellectual development. This point is noteworthy and must be focused on because there is convergence in literature that having a considerable level of academic and social integration leads to student persistence (Severiens et al. 2006; Severiens and Wolff 2008).

Among the other thinking styles that correlated with academic and social integration, liberal thinking styles correlated with more of the variables. It correlated with such sub-dimensions of academic integration as *interactions with faculty, concern for development, academic* and *intellectual development.* As it was stated, liberal thinking style involves trying new methods, questioning the routine ways of doing things, questioning established ideas, and obtaining new perspective; therefore, instruction should focus on equipping students with such abilities. Language teaching stands out here as we can provide many opportunities for students whereby they can find a chance to see novelty, new perspectives, and evaluate established practices better. This can be done through well-selected reading passages or listening passages in which students can be exposed to liberal thinking ways.

CONCLUSION

The aim of the present study was to examine the potential connection between thinking styles and academic and social integration. As it has already been perceived, such concepts as thinking styles exercise a prescriptive function in specific behaviors or tendencies within the scope of educational psychology and for this reason; it is considerably valuable to study them in order to elucidate the educational process. The study found that it is possible to claim that oligarchic, executive, and liberal thinking style were among the most common thinking styles; whereas conservative and hierarchical thinking style were the least common thinking styles and it is noticeable that liberal thinking styles were mostly correlated with academic and social integration. Overall, the detailed examination and analysis were presented in the discussion part with all the aspects related to the correlation between thinking styles and academic and social integration.

The present study did not focus on the relation between thinking styles and academic integration in relation to academic success. There are studies that indicate that learners with legislative and judicial thinking may have to do with an in-depth approach to learning (Zhang & Sternberg, 2000). In another study, Zhang (2002) pointed at a remarkable correlation between judicial thinking and cognitive development in individuals. Therefore, future studies can focus on the relation between academic success and thinking styles.

In addition, as for academic and social integration, Tinto's model (1975) suggests that feeling a part of the institution, taking part in extra-curricular activities, ensuring social integration with friends and faculty members are significant predictors of persistence in academic life, indicating that social integration is central to a satisfactory academic life and graduation in the end. Ensuring social integration is possible through both one's cognitive abilities and faculty's support. Hence, in the first place, faculty members should be supportive in this respect. For future research, the proposed relation between academic and social integration and student persistence can be studied.

Furthermore, Severiens and Schmidt (2009) suggest that academic and social integration can be further sub-divided into two categories: (1) formal integration, and (2) informal integration, the former referring to interacting with the faculty and the latter referring to interaction between teachers

and students outside the direct context of the learning environment. Hence, future studies can target the predictive value of these two types of integration.

Literature shows that thinking styles are teachable, measurable, and variable across tasks and situations, marking the dialogic character of thinking styles (Buluş, 2016; Sternberg, 1997). Therefore, education planners should focus on how best to teach and them which ones to teach. It may be possible to integrate them within strategies-based instruction.

The main purpose of the present study was to see the correlation between thinking styles and academic and social integration. That is why 4th grade students were selected as participants on the premise that they have established ideas and attitudes towards academic and social integration. Moreover, they have accumulated a huge body of experiences that matured their ideas about academic and social integration. Therefore, within the context of the present study, no comparison between and among grade levels was not conducted. This is one of the limitations of the study. Future studies can focus on grade-level differences.

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