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The Relationship between Constructivist Thinking and Academic Engagement among University Students in Light of Some Variables

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Abstract

This paper focuses on revealing the relationship between constructivist thinking and academic engagement among university students in light of some variables. To achieve the objectives, a sample of 697 male and female students was selected using available sample method at the Qasimi Academic College of Education. The correlational approach was used. The constructive thinking scale and measure of academic participation were applied. The results showed a statistically significant positive correlation between academic participation and constructive thinking dimensions. The results also showed a statistically significant negative correlation between academic participation and destructive constructive thinking dimensions. The results indicated that there were no significant differences in correlation factors between constructive thinking and academic engagement attributed to gender and specialization. Based on the findings, it is logical to conclude that the increase in constructive dimensions of constructive thinking contributes to achieving academic engagement, while the increase in destructive dimensions of constructive thinking reduces academic engagement.

Keywords: Constructive thinking, academic engagement, university students

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Introduction

All educational institutions, including universities and various colleges, seek to achieve the highest possible level of student engagement in the educational process. This engagement does not only stop at the behavioral aspect, but it also extends to the psychological, cognitive, and emotional aspects.

The university education stage is one of the most prominent educational stages, where students focus on their specializations through theoretical and practical coursework, as well as various extracurricular activities. Academic participation occurs at this stage when students delve into learning activities, and when they are cognitively, emotionally, and socially immersed into various courses in addition to academic activities and tasks. Academic engagement also occurs when students achieve positive social interactions with each other (Hattie, 2003).

Academic engagement refers to the quality of effort or involvement that students devote to academically and educationally meaningful activities, while academic engagement is directly related to academic course outcomes, academic achievement, as well as future job prospects and the career success of students (Karki et al., 2020).

Consequently, academic engagement is not merely about receiving and memorizing information; it also involves building knowledge, translating it, connecting it with prior experiences, and applying it in decision-making and problem-solving. The role of constructive thinking lies in integrating acquired knowledge with the individual's sensory, cognitive, and emotional side. When there is a conflict between what the individual has done previously and new experiences, this creates a state of imbalance that may push the student to learn and achieve academic engagement. This is relatively possible through constructive thinking, which focuses on the mind, body and spirit together, and it helps in solving daily problems with minimal effort and without harassment from others (Shaw, 2021).

Theoretical Literature

Constructivist Thinking

Constructivist thinking refers to a set of habitual, automatic, and cognitively productive thoughts that influence an individual's ability to think. This concept was coined by Epstein, who is considered the pioneer of constructivist thinking (Thayer-Bacon, 1998).

Constructivist thinking is seen as an outgrowth of cognitive experiential self-theory (CEST), a dual-operational model of cognition developed by Seymour Epstein. This theory assumes that individuals operate using two separate information-processing systems: the analytic-rational system and the intuitive-experiential system (Epstein, 2003).

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Individuals with an analytic-rational system are thoughtful, slow, and logical. Other individuals with an intuitive-experiential system are fast, spontaneous, and emotionally driven. These systems are independent, work in parallel, and interact to produce conscious behavior and thought. Self-experiential cognitive theory is unique in that it posits two systems that make up an individual's personality, rather than viewing personality as a single construct (Pacini & Epstein, 1999).

However, Epstein (2003) has argued that there is constant interaction between these two systems in the context of everyday life. The experiential system, being fast, guided by emotion and past experience, and requiring minimal cognitive resources, is particularly well-suited for managing most daily information processing—much of which occurs outside conscious awareness. The rational system, in light of the experiential system's operation, allows individuals to focus on the limited capacity of conscious awareness.

Thus, constructive thinking is a theoretical component of the experiential system. It is also defined as the degree of automatic thinking that an individual achieves without deliberate intention, such that it is easier for the individual to solve problems in daily life with the least possible cost under pressure (Epstein, 1998a). For example, constructive thinkers tend to interpret new situations as challenges rather than threats, and they view issues positively and with a certain degree of realism (Epstein, 2003).

It can also be said that constructive thinking is an indicator of intelligence associated with the individual's experience system, as it reflects the extent to which the individual is able to learn from past experiences and determine the way of thinking that increases his effectiveness in life. Thus, constructive thinking helps solve daily problems with minimal effort and without harassment from others (Thayer-Bacon, 1998).

It can also be said that individuals with positive constructive thinking are described as flexible and they are able to change and modify their behavior to suit the variables of the surrounding environment. Individuals adapt their behaviors and actions according to different academic situations and tasks, and it makes it easy for them to understand logical issues. Their optimism or pessimism is appropriate to the situation they are going through, and they focus on solving the problem more than focusing on the results. Individuals exhibit a high degree of emotional control, along with low levels of superstitious and categorical thinking. These characteristics collectively enable them to integrate effectively into the academic environment (Vizoso et al., 2018).

Shaw (2021) highlighted that the most prominent characteristics of constructivist thinking include its cooperative and collective nature, the integration of cognitive, emotional, and behavioral dimensions in the learning

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process, an emphasis on wisdom and obedience, a bottom-up approach, and a foundation of critical analysis supported by conclusive evidence.

Individuals with negative or destructive thinking are described as having an inability to self-regulate, a clear dispersion of thoughts, a lack of sufficient problem-solving skills, making incorrect judgments, superstitious thinking, and having high levels of unjustified optimism that may lead them to make exaggerated generalizations about the events they experience. In addition, their thinking is also described as narrow and may lead them to only two options either left or right, backward or forward (Epstein, 1998b).

It can be said that constructive thinking consists of two basic components; the first is the constructive component, and the second is the destructive component. The constructive components of constructive thinking that the researcher has adopted in this study can be described below:

1. Global constructive thinking, considered an automatic way of thinking in daily life, helps solve life problems and this solution is without pressure, tension, anxiety or causing pain to the individual or others (Epstein, 2001).
2. Emotional coping and behavioral coping, where emotional coping refers to the ability to avoid taking things personally, not being sensitive to others' disapproval and not worrying excessively about failure or rejection. Individuals who rate themselves highly in emotional coping are not overly sensitive, do not overreact when problems arise, and do not care excessively about things over which they have no control (Humphreys & Zettel, 2002).

Emotional coping includes four main components. The first component is self-acceptance, which refers to the positive attitude of the person towards himself and the subsequent self-respect, feeling, and development. The second component refers to the absence of negative overgeneralization. Basically, overgeneralization - even if it is positive - is completely unacceptable. So how about negative generalization? Therefore, the individual should avoid generalizing negative events, especially if they are in the past. The third component refers to insensitivity which indicates the extent of the individual's ability to tolerate the rejection of others, to be tolerant of them, and to tolerate the element of ambiguity and surprises in life events. The fourth component refers to the absence of elaboration in thinking and avoiding the control of negative events that the individual may experience over his thinking (Murad & Saber, 2021).

On the other hand, behavioral coping refers to individual's willingness to adopt thought patterns that encourage effective behavior and sustain an optimistic outlook on life. Those who rate themselves highly on behavioral

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congruence tend to be practical and approach problems with great energy (Epstein & Meier, 1989).
The destructive components can be addressed as follows:

- Personal superstitious thinking which is concerned with specific beliefs that the individual is convinced of without objective or scientific evidence, and it can be described as mental games that the individual practices to confront a state of failure or imbalance.
- Categorical thinking: This thinking is described as narrow thinking, which makes its owner see only two colors; black and white.
- Esoteric thinking, or what is known as limited thinking, is concerned with general beliefs that the individual is convinced of without objective evidence (Epstein, 1998b).

Additionally, naive optimism is an exaggerated generalization of the positive events that the individual experiences. Hence, it consists of three elements. The first is excessive optimism, which expresses the individual's belief that his success in his work makes him successful in everything. The second is stereotypical thinking, which indicates an exaggerated reaction such as the individual believing that the people of a certain region are more stingy or generous than others. The third is optimistic thinking, where the individual believes that all people are kind-hearted (Al-Huwaiji, 2016).

According to the hierarchical property, the most general constructive thinking is at the top of the pyramid, while emotional compatibility, behavioral compatibility, personal superstitious thinking, categorical or categorical thinking, introspection and naive optimism are in the middle of the pyramid. However, the manifestations of these main components represent the qualitative components of constructive thinking, which are at the bottom of the pyramid (Epstein, 2001).

Academic Engagement

Academic engagement is defined as the amount of physical, psychological, cognitive, social, and emotional energy that a student expends in the academic institution to which he belongs. This energy is invested in areas such as participation in classroom and extracurricular activities and in achieving positive social interaction with students and faculty members (Astin, 1993). Schaufeli and Bakker (2006) define it as a positive mental state in the student, such that this state makes the student characterized by vitality, cognitive flexibility, and effective participation in the classroom. Schreiber and Yu (2016) define it as the student's success in the activities provided by the academic institution, in addition to the circumstances surrounding the individual that enhance his continuity within the academic institution. Thus, this is determined through purposeful activities, positive interaction, and

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awareness of the educational environment. Academic engagement refers to the levels of effort or participation students devote to meaningful academic and educational activities. In addition, academic engagement is directly related to academic outcomes, future work orientation, and student career success (Karki et al., 2020).

It can be stated that there are three main dimensions of academic engagement, which are:

1. **Behavioral Engagement**: This dimension refers to an observable act whereby a student participates in various learning activities and the efforts made to perform academic tasks such as interacting with the teacher and peers and participating in activities within the classroom (Revee & Tseng, 2011).

   Behavioral engagement is usually defined as active participation in both academic and non-academic learning activities. Behavioral engagement is associated with a student's overall positive behavior, ability to follow rules in the classroom, and lack of disruptive or aggressive behavior. In addition, displaying academic behaviors, such as exerting effort, showing persistence, asking questions and maintaining focus, are also indicators of behavioral engagement (Finn & Voelkl, 1993).
2. **Cognitive Engagement**: This dimension represents the extent to which students are interested in the learning process and being able to take on its tasks, such as learning styles, cognitive styles, self-regulation strategies, and developed learning strategies (Revee & Tseng, 2011).

   Fredricks et al. (2004) confirmed that cognitive engagement means a general investment in learning. Students who show investment in learning have higher scores on tests and academic activities. Also, they are less likely to be disruptive, absent from school, or drop out of school. Cognitive engagement is a student's psychological investment, and it is an effort directed toward learning, understanding, and mastering knowledge and skills or crafts that academic work aims to enhance. Students in cognitive engagement show behavior that exceeds stated expectations and seeks academic challenges.
3. **Emotional Engagement:** This dimension refers to the student's emotions and feelings within the academic environment such as feeling excited, interested, happy, not anxious, stressed and bored (Revee & Tseng, 2011).

   Emotional engagement also reflects students' feelings and actions related to the academic institution and classrooms. It also provides an opportunity for students' emotional reactions to be seen, such as boredom, sadness, and anxiety. Emotional engagement can be assessed

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by measuring students' reactions to school and teachers. Students who are emotionally engaged in school show higher academic achievement than others (Lee & Smith, 1995).

Study Problem

The study problem emerged from the results of some previous studies (Miralles-Armenteros et al., 2019; Vizoso et al., 2018). These results showed the importance of achieving academic engagement for students within their different academic environments. They also showed the existence of variables that may positively affect academic engagement and may increase its different levels. The researcher, by virtue of his work as a school principal, noticed that students do not have characteristics of academic engagement such as vitality, cognitive flexibility, and effective participation within the classroom. Their interaction with the elements of the educational environment is very negative, and their awareness of it is at its lowest, which affects the outcomes of the educational process in a very negative way. Another justification for conducting this study is that the relationship between academic engagement and constructive thinking is unclear. Thus, it is based on the dimensions of constructive thinking related to emotional and behavioral coping only. Also, there is no direct relationship between the two variables in foreign studies to the best of the researcher's knowledge. Accordingly, this study came in an attempt to determine the relationships between constructive thinking and academic engagement among university students, by answering the following two questions:

1. **Is there a statistically significant relationship at the significance level (α=0.05) between constructive thinking and academic engagement among university students?**
2. **Does the strength of the relationship between constructive thinking and academic engagement differ according to gender and specialization among university students?**

Material and Methods

This study relied on the correlational approach.

Sample

The study sample comprised 697 undergraduate students from Al-Qasemi Academic College of Education, located within the Green Line in Baqa al-Gharbiyye. Participants were selected using the available sampling method. However, this method allow researcher to access participants who are readily available and willing to participate. Given that the target population consists of students at Al-Qasemi Academic College, this method is both time-efficient and cost-effective, ensuring timely data collection within the

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constraints of the academic calendar. The sample included 256 male and 441 female students. Of these, 148 were enrolled in scientific disciplines, while 549 were pursuing humanities disciplines. Data collection was conducted during the second semester of the 2022-2023 academic year using paper-based scales.

Study Tools

Academic Engagement Scale

The researcher used the Academic Engagement Scale of Afifi (2016), where the scale consisted of 61 items distributed over three dimensions: behavioral engagement (22 items), emotional engagement (21 items), and cognitive engagement (18 items).

To verify the validity of the scale, it was presented to a group of 9 jurors who are specialists in educational psychology, measurement and evaluation. They were asked to verify the linguistic formulation of the items and to judge the extent to which the items belong to the dimension, and any comments they deem appropriate. The consensus of 7 or more jurors was relied upon. The jurors indicated the deletion of the item stated as "I participate with my colleagues outside the lecture hall in performing the required assignments" from the behavioral engagement dimension due to its inappropriateness to the academic context and linguistic modifications were made to some items.

The reliability of the academic engagement scale was confirmed through the internal consistency coefficient (Cronbach's alpha), where it reached 0.90 for the behavioral dimension, 0.90 for the emotional dimension, 0.87 for the cognitive dimension, and 0.93 for the overall dimension, indicating that the scale has a high degree of reliability (Li et al., 1996).

Constructive Thinking Scale

The researcher used the constructive thinking scale developed by Epstein and Meier (1989), which was Arabized, developed, and modified by Morsi et al. (2020). The scale consisted of 78 items distributed over seven dimensions: global constructive thinking (7 items), emotional coping (18 items), behavioral coping (11 items), personal superstitious (6 items), categorical thinking (13 items), esoteric thinking (13 items), and naive optimism (10 items).

After presenting the scale to the jurors, they agreed to delete item stated as “I never learned to read” from the dimension of behavioral coping because it is not clear, and it does not belong to the dimension. Also, they agreed to delete item stated as “I care about others’ opinions of me” from the dimension of emotional coping because it is does not belong to the dimension. Furthermore, they also agreed to delete items stated as “There are two types

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of people: successful people and failures" and "Two + two = four" from the dimension of categorical thinking because it is unclear. They also agreed to delete item stated as "When I have many tasks, I make a plan to accomplish them and stick to it" from the dimension of esoteric thinking because it does not belong to the dimension.

Accordingly, the scale became composed of 73 items distributed over seven dimensions, which are: global constructive thinking (7 items), emotional coping (17 items), behavioral coping (10 items), personal superstitious thinking (6 items), categorical thinking (11 items), esoteric thinking (12 items), and naive optimism (10 items).

The reliability of the constructive thinking scale was also confirmed through the internal consistency coefficient (Cronbach's alpha), where it reached 0.88 for the global constructive thinking domain, 0.93 for the behavioral coping domain, 0.93 for the emotional coping domain, 0.92 for the categorical thinking domain, 0.84 for the naive optimism domain, 0.95 for the esoteric thinking domain, and 0.76 for the personal superstitious thinking domain.

Results

1. **Is there a statistically significant relationship at the significance level (α=0.05) between constructive thinking and academic engagement among university students?**

To answer this question, Pearson's correlation coefficient was extracted between constructive thinking and academic engagement, as shown in Table 1 below.

Table 1. Pearson correlation coefficient values between constructivist thinking and academic engagement

	Behavioral engagement	**Emotional engagement**	**Cognitive engagement**	**Academic engagement**
Global constructive thinking	0.18**	0.22**	0.28**	0.29**
Emotional coping	0.23**	0.21**	0.19**	0.20**
Behavioral coping	0.25**	0.27**	0.29**	0.31**
Personal superstitious	0.011	0.02	0.08	0.04
Categorical thinking	-0.25**	-0.31**	-0.34**	-0.41**
Esoteric thinking	-0.34**	-0.36**	-0.40**	-0.42**
Naive optimism	-0.28**	-0.30**	-0.22**	-0.31**

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

It is noted from Table 1 that the relationship between academic engagement and constructive dimensions of thinking was a positive relationship with statistical significant, ranging from 0.18 to 0.31. Conversely, the relationship between academic engagement and the destructive dimensions

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of thinking was negative and statistically significant, ranging from -0.22 to -0.42.

This result can be attributed to the fact that constructive dimensions of thinking motivate students to focus on goals, manage academic challenges, and think critically on how to succeed. Constructive thinking is an automatic way of thinking about daily life and it helps in solving life's problems. This solution avoids pressure, tension, anxiety, or causing pain to the individual or others, thereby fostering high levels of academic engagement. Additionally, the readiness generated by behavioral coping enhances students' ability to exhibit effective behavior and maintain an optimistic outlook on life, further increasing their levels of academic engagement. Emotional coping also generates students' ability to avoid taking things personally by not being sensitive to others' rejection and not being overly concerned about failure or rejection. Thus, this helps them to achieve high levels of emotional engagement.

In contrast, categorical thinking, which is described as narrow, black-and-white thinking, does not promote academic engagement. This narrow way of thinking leads to overly simplistic judgments, as students may view academic challenges or tasks as either complete successes or complete failures without recognizing the nuances and complexity involved in learning. Such binary thinking can hinder problem solving, critical analysis and adaptive responses to setbacks, as students fail to appreciate the gray areas where growth and learning often occur. As a result, categorical thinkers may withdraw when faced with difficulties or become too rigid in their approach, thereby missing out on opportunities for deep academic engagement and flexibility in their learning process.

The overgeneralization of positive events experienced by an individual may negatively impact academic engagement. Naive optimism can lead students to form unrealistic expectations or develop a false sense of security, potentially hindering their motivation to engage in academic tasks. When students overgeneralize positive experiences, they may believe that success will come easily in future endeavors, which may lead to a lack of effort or complacency. This naive optimism can reduce the engagement of the need for continuous work and improvement, leading to detachment from academic challenges. Consequently, a negative association with academic engagement arises because the student no longer feels the same motivation to actively engage in learning processes. This is with the assumption that past success guarantees future results without effort.

2. Does the strength of the relationship between constructive thinking and academic engagement differ according to gender and specialization among university students?

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To answer the study question, Fisher's Z values were extracted to verify the differences in the correlation coefficients between constructive thinking and academic engagement according to the variables of gender and specialization. Table 2 illustrates this.

Table 2. Fisher's Z-values of the correlation coefficients between constructivist thinking and academic engagement according to the gender and specialization

Variable	Level	Academic Engagement correlation coefficients	Z-values	Constructivist Thinking correlation coefficients	Z-values
Gender	Males	0.46	0.497	0.62	0.725
	Females	0.32	0.332	0.46	0.497
Specialization	Scientific	0.34	0.354	0.52	0.576
	Humanities	0.42	0.448	0.56	0.633

It is clear from the table that the values of "z" for the correlation coefficients between constructive thinking and academic engagement according to the variables of gender and specialization were low and less than the critical value (±1.96). Therefore, there are no significant differences in the correlation coefficients attributable to gender and specialization.

Constructive thinking can be said to depend on prior knowledge, analysis and logic, arrangement and organization, and openness to experience. These variables do not stop at males without females or vice versa, and they do not stop at humanities without science or vice versa. All students, regardless of their gender or specialization, rely on the ability to analyze and infer causal relationships and logical relationships between different information, as well as the ability to think logically and derive logical conclusions. These matters are the basis for positive constructive thinking. In addition, individuals rely on prior knowledge to analyze problems and reach logical solutions for them. This knowledge either supports the constructive components of constructive thinking if it is correct or reinforces the destructive components of constructive thinking if it is incorrect or if the individual responds to a situation inappropriately.

This result can also be attributed to the fact that all university students, regardless of their academic specializations and gender, are required to achieve academic engagement and engage in various tasks and activities. Also, all specializations contain tasks, activities, and educational experiences that require individuals within the academic institution to implement and integrate effectively. For example, language specialization requires the student to engage in listening and speaking skills, go to language laboratories and interact with the tasks posed by the faculty members. The same applies to the statistics student, as he must engage in computer laboratories to learn statistical packages for various statistical software (such as SPSS, SAT, AMOS, TAT) and others.

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Students' ability to deal effectively with everyday academic challenges is a trait that transcends discipline or gender roles. It is rooted in academic achievement and is not intrinsically linked to an individual's gender or major. All students, whether in the natural sciences, humanities or any other discipline, face similar academic pressures such as exams, assignments, and the need to manage their time. Their ability to deal effectively with these challenges depends on their self-efficacy, sense of control, academic engagement, and relationships with their teachers, rather than on their gender or field of study. Consequently, self-esteem, which is closely linked to an individual's perceived ability to overcome academic obstacles, is similarly influenced across all domains.

Recommendations

Based on the findings of the current study, it is recommended to enhance academic engagement among university students by fostering positive dimensions of constructive thinking, such as global constructive thinking, emotional coping, and behavioral coping. Additionally, efforts should be made to discourage destructive dimensions of constructive thinking, including personal superstitious, categorical thinking, esoteric thinking, and naive optimism, as these were found to have a negative association with academic engagement. The study also recommends that university's faculty members should pay more attention to global constructive thinking, emotional coping, and behavioral coping. This is in addition to conducting other similar studies on constructive thinking, the big five personality factors, and academic emotions among university students.

Conclusion

The current study aimed to find out the relationship between constructive thinking and academic engagement among university students in light of some variables. Based on the findings, it is logical to conclude that the increase in constructive dimensions of constructive thinking contributes to achieving academic engagement, while the increase in destructive dimensions of constructive thinking reduces and undermines levels of academic engagement.

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Data Availability: All data are included in the content of the paper.

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