

ANALYSIS OF UNIVERSITY STUDENTS' THINKING SKILLS

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ABSTRACT

OBJECTIVE

To investigate the prevalence of different thinking skills among the university students and find out the impact of gender on the thinking skills of university students.

STUDY DESIGN

Descriptive study.

PLACE AND DURATION OF THE STUDY

The study was conducted in different departments of GCWUF, GCUF and University of Agriculture, Faisalabad from 01-07-2016 to 30-06-2017.

SUBJECTS AND METHODS

The 670 students of different universities were included in this sample. The rational experiential inventory (REI) and questionnaire of reflective thinking (QRT) were adapted to collect the required data. The questionnaire of reflective thinking measured the four dimensions of habitual action, understanding, reflection and critical reflection and the REI measured the rational and experiential thinking of university students.

RESULTS

Findings of this study revealed that understanding of the university students' was higher than the habitual action, reflection, and critical reflection. The rational thinking of university students was more comprehensive than the experiential thinking of university students.

CONCLUSION

The university students' rational thinking was higher than the experiential thinking. However, the subscale wise comparison acknowledged that mean score of understanding was also higher than the other types of thinking skills.

KEY WORDS

Critical, Rationale, Experiential, Reflective.

INTRODUCTION

Thinking skill is the cognitive process which learners' develops intellectual cooperation, formulate ideas; it determines the rationality of ideas for complicated thinking tasks¹. Thinking suggest innovative or demanding conditions of the brain and support to achieve, and control ourselves philosophy².

As per Hastie and Dawes (2010) thinking is the skill of that "stuffing differences in confirmation". The thinking process is based on the interpretation that expectations can be determine accordingly with mention to prospective circumstances³.

According to Lund (2014), thinking is a complicated development that influences every condition of activity. Thinking is the technique which intelligence image is composed through the revolution of knowledge by complicated interaction of the intelligence aspects of inferences, determining, hypothetical, formulating, and problem solving. There are three essential concepts of thinking. Thinking associate the guidance of intelligence, thinking concern as constitutional transform of knowledge and thinking is conducted towards explanation⁴.

Oakley proposed that the cognitive improvement is the innovative and advancement research that develop in the thinking or interpretation in the learners, it is the review of how these procedures promote in learners, or how they develop into more adequate and competent in their perceptive in their intellectual procedure. The characteristic of mental development is the elaboration of dignified aptitude and discovery phase of cerebral expansion remain ethical perceptive, learners' improve understanding through universal cognitive development⁵.

Williams considered thinking is at the heart of subsequent for every culture not alone for our association. It is the competence to determine critically that help learners to develop information and character out how to adjust and accommodate to new positions. The teacher is the coordinator that provide students with a productive environment, cooperative learning, and portfolio measurement to encourage students thinking and learning and stimulating social surrounding that help learners to determine the problems they encounter⁶.

The psychological attributes indicate the cognitive or personality characteristics that influence the thinking process of individually students' perception that influence the learning and thinking process⁷. The critical thinking is the mental process which describes reasoning in an open ended mannered with an unlimited number of solutions⁸. Critical thinking skills are the fundamental proceeding for decision making and problem solving, it is also called a domain of general thinking skills⁹.

Galindo described creativity as the ability of classical ideas, rules, patterns, relationships, forms, methods and interpretations¹⁰. The reflective thinking is the gauge of learners' to accomplishment in learning. There are two spheres of reflective thinking. Reflection in response describes the thinking deliberate while response is being done and the reflection on response defines the thinking deliberate subsequently response has been done¹¹.

The cognitive strength is more influenced the divergent thinking thought. The patterns of divergent thinking are more necessary of creative complication information¹². The cognition is the mental process that consists of large stock of precise knowledge, ideas, understanding, that support us to use this information at the appropriate moment¹³.

The left hemisphere of human brain processes rational, logical and measurable factors. The right hemisphere of the human mind is concerned with the theoretical, general and non-voiced features of understanding^{14,15}.

The human brain contain four different knowledge manners, every manner has its individual behavior. The quadrant "A" is the upper left part of the mind that influences to think. The quadrant "B" is the individual keeping technique of thinking and the quadrant "C" learners' work in association and contribute information for every association representative. The quadrant "D" is the upper right section of human intellect that convenient to intelligent manner of thought process¹⁵.

Thinking styles to be more common are emotional descriptions. This style of thinking has been described as experiential thinking and rational thinking¹⁶. The experiential thinking discriminates theoretical system that public use to process instruction. In this technique people may capture their feelings¹⁷.

Epstein (2014) explained the rational thinking styles as the non-emotional and objective procedure of decision making. The rational systems conduct the person's perceptions of philosophy and the deliberation of confirmation and they administer the procedures of people categorical theories of phenomenon¹⁸. The experiential procedure acknowledged the assumption and characteristics of experiential aspects that are generally non-verbal, integrated and comprehension. The experiential learning is the description of reality, not a set of educational methods that the people learn from their experience¹⁹. The rational style of thinking provides accurate decisions and process information. The rational thinking computes reflection awareness, attitudes, expectations and reactions. It facilitates the understanding of joy, peace of mind and opportunity of circumstance. The rational thinking definitely and reasonably grants to take authority for new level of satisfaction²⁰.

Kember and colleagues categorized four dimensions of thinking, habitual action, understanding, reflection, and critical reflection.

The understanding and habitual action produced conditions of thinking that are well structured while the reflection and critical reflection are comparatively un-structured²¹.

The current study examined the "Analysis of university students' thinking skills". We established theoretical bases of the current study on experiential and rational thinking, habitual action, understanding, reflection, and critical reflection. The study intended to investigate the contribution of students' preferences of different thinking styles and decision making process.

The major purpose of current research was to analyze the conception of university students thinking skills included in the sample. This research aims at investigating the prevalence of different thinking skills among the university students and find out the impact of gender difference on the thinking skills of university students.

SUBJECTS AND METHODS

Participants

670 students were included in this sample from three main stream public universities in district Faisalabad. These universities were Government College University (n=187), Government College Women university (n=384), and University of Agriculture (n=99).

Instruments

To measure the variety of thinking pattern of the students, the rational and experiential inventory (REI)¹⁸ and the questionnaire of reflective thinking (QRT)²¹ were used. The questionnaire of reflective thinking (QRT) determined four extensive range of reflective thinking; habitual action, understanding, reflection and critical reflection of university students²¹. Demographic sheet included information about socio demographic variables of the study participants.

Procedure

After approval from board of studies, students were contacted in the campuses of their respective universities. Informed consent was taken after debriefing them about objectives, procedure and purpose of study and right to participate and withdraw at any stage from the study. Booklets containing tools were handed over to the students to fill in. participants were thanked for their participation at the end of study. Scales were scored and entered to SPSS for analysis.

RESULTS

In the initial phase of the statistical analysis of data, consistency, and accuracy of the adopted instrument were estimated on the selected universities included in the sample. The mean score and t-test are used to find out the university students' preferences for different thinking skills.

Table 1
The mean score showing the university students' preferences for different thinking skills (n=670).

Serial No	Thinking skills	Mean	Standard Deviation
1	Habitual action	3.29	1.01
2	Understanding	4.07	.849
3	Reflection	3.95	.821
4	Critical reflection	3.70	.922
5	Rational thinking	2.86	.582
6	Experiential thinking	3.32	.594

Table 2

Independent sample t-test on the thinking skills of female and male university students (n=670).

Serial No	Thinking skills	Mean Female	Mean Male	Mean Difference	t	p
1	Habitual action	3.29	3.27	.019	.196	.845
2	Understanding	4.13	3.84	.296	3.50	.000
3	Reflection	3.97	3.86	.109	1.35	.175
4	Critical reflection	3.73	3.60	.133	1.46	.143
5	Rational thinking	2.82	3.05	-.230	-4.06	.000
6	Experiential thinking	3.30	3.41	-.104	-1.71	.073

Table 3

Independent sample t- test on the thinking skills of university students' as per subjects (n=670).

Serial No	Thinking skills	Mean faculty of Arts and Social science	Mean faculty of Science and Technology	Mean difference	t	p
1	Habitual action	3.35	3.23	.127	1.61	.106
2	Understanding	4.10	4.04	.058	.887	.375
3	Reflection	3.94	3.95	-.013	-.205	.838
4	Critical reflection	3.71	3.70	.015	.211	.833
5	Rational thinking	2.79	2.92	-.124	-2.78	.006
6	Experiential thinking	3.31	3.31	-.023	-.517	.605

Table 1 provided the mean score and standard deviation of university students' on different domains of thinking. The sample in using their habitual action in thinking process had the least mean score ($M = 3.29$, $SD = 1.01$). The understanding in thinking process had the highest mean score ($M = 4.07$, $SD = .849$).

Table 2 showed gender differences in the thinking skills of the university students included in the sample. The t test produced enough evidence to establish gender differences in understanding domain of thinking, female students scored higher ($M=4.13$) on this domain as compared with male students ($M=3.84$). The t-test produced satisfactory evidence to point out significant the gender differences in rational thinking. It showed that male university students scored more ($M=3.05$) than the female students ($M=2.82$). The t test could not establish significant differences in habitual thinking, reflection thinking, critical reflection thinking and experiential thinking of university students.

Table 4 presented t statistics on the thinking skills of university students included in the sample as per subject they were studying. The t-statistics found significant subject wise differences in the rational thinking of university students. The results showed that the faculty of science and technology students scored higher ($M=2.92$) than the faculty of arts and social sciences students ($M=2.79$) on rational thinking domain. Results could not found significant differences on other domains of thinking.

DISCUSSION

The first objective of this research was to investigate the prevalence of different thinking skills among the university students. The basic information of the decisions acknowledged different conditions of the university respondents included in the sample of thinking skills. The scale wise instruction of the data was measured in confrontation of first research objective of the study. Analysis found that most used thinking style of the university students understanding while least used thinking style was habitual action.

Interestingly as per theory both of these styles of thinking are among the more structured styles of thinking²¹. If both most and least used styles are among the structured category it hints that the quality of structure or the presence of formal structure in thinking process is not associated with the choices. In simple words student did not preferred a specific style based on its structural form. Students chose understanding over other styles, this tells that information that students try to make sense of the information being presented and do not respond in habitual manner with our understanding. Previous literature agrees with the findings. As per Hastie and Dawes (2010) thinking is the skill of that "stuffing differences in confirmation". The thinking process is based on the interpretation that expectations can be determine accordingly with mention to prospective circumstances³.

The second objective of this study was to find out the gender differences in the thinking skills of university students. In the subscale of reflective thinking it was shown that the females preferred understanding style more than the males while males preferred the rational thinking style more than females. Previous literature also hinted at the role of such factors in determination of thinking. The psychological attributes indicate the cognitive or personality characteristics that influence the thinking process of individually students' perception that influence the learning and thinking process⁷. Thinking styles to be more common are emotional descriptions. This style of thinking has been described as experiential thinking and rational thinking¹⁶. The experiential thinking discriminates theoretical system that public use to process instruction. In this technique people may capture their feelings¹⁷.

Epstein (2014) explained the rational thinking styles as the non-emotional and objective procedure of decision making. The rational systems conduct the person's perceptions of philosophy and the deliberation of confirmation and they administer the procedures of people categorical theories of phenomenon¹⁸. The rational style of thinking provides accurate decisions and process information. The rational thinking computes reflection awareness, attitudes, expectations and reactions. It facilitates the understanding of joy,

peace of mind and opportunity of circumstance. The rational thinking definitely and reasonably grants to take authority for new level of satisfaction²⁰.

CONCLUSION

The study found that Understanding was the most used style of thinking by the overall sample generally and females specifically while rational thinking was higher in males and students of sciences. The habitual action was the least used style of thinking.

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