# Growth Mindset Among University Students

**Nour Abbas Fade**

**Prof. Dr. Hussein Rabie Hammadi**
College of Education of Humanities, University of Babylon, Iraq
Email:nour.mahdi.hum156@student.uobabylon.edu.iq

## Abstract

The research aims to identify the growth mindset among university students and the statistically significant differences according to the variable of gender (males / females) and specialization (scientific / humanitarian), where the sample amount reached (378) male and female students who were chosen by the stratified random method with a proportional distribution from six colleges and distributed by (174) males (46%) and (204) females (54%). The growth mindset scale prepared by the researchers was applied, which consists of (35) items and five alternatives on the Likert scale on the research sample. The results concluded that there is a good level of growth mindset among university students, and statistically significant differences according to the gender variable, and statistically significant differences according to the specialization variable.

**Keywords:** Growth mindset, University, Students

## Research problem

Students who do not have a growth mindset experience low self-esteem throughout their college years and fall victim to negative self-impact associated with the challenges and setbacks these students face. Studies have found that students who have a fixed mindset engage in strategies that preserve their self-worth and choose to do simple things that bring them simple success to appear smart in front of others. They are more likely to think of lying or cheating in order to appear better, unlike those students who do more difficult work, face greater challenges, take on new experiences, and not evade them. They do not try to take advantage of their successes, take them into account, or learn from them. (Nussbaum & Dweck, 2008).

## Significance of the Research

*The significance of the research is summarized in the following points:*

1. The current study is a base from which other researchers start to identify many cognitive facts in the field of growth mindset and its importance among university students.
2. Addressing important concepts in the field of psychology, which is the concept of growth mindset, since it is one of the important matters of individuals' lives, in addition to its impact on their lives in practice.
3. The results of this study can contribute tremendously to the development of university students' thinking, capabilities and abilities to keep pace with all current and future life changes because they represent the first and most important investment in all countries, especially the advanced ones, where they work to invest the energies of their young people.
4. The growth mindset for students clarifies the paths of development and renewal in their universities. It also prompts them to enter into competitions of challenge and excellence with others, enhance self-confidence, and help them overcome personal obstacles that prevent their ability to express their mental potential.

5.      This study gives feedback to the program preparers of the training program by focusing on courses that develop a growth mindset.

# Research Objectives

1.      The growth mindset of university students.
2.      Statistically significant differences in the growth mindset of university students according to the gender variable (male / female) and specialization (scientific / humanitarian).

### Theoretical Framework

The mental processes stopped thinkers and researchers in recognition of their importance in individual and collective human development. Perspectives differed on the aspects of mental development that were studied according to the differences about the nature of the mind or its function and the connection of its stages with the stages of life. It is considered a basis in the development of the ability to think, intelligence, learning, problem solving and improving the all the methods used by the individual. Dweck defines the growth mindset is the possibility of changing intelligence through the tendency to think and make an extra effort and perseverance when facing obstacles and setbacks. (Dweck,2006)

Dweck (2009) explained in her research that attributing the failure of the individual in a particular task is due to the lack of effort expended more than the difficulty of that task or the weakness of ability, which leads to an increase in determination and perseverance, and this has a major role in the return of failure from factors that cannot be controlled. It is based on factors that can be dominated and controlled to avoid failures (Dweck, 2009).

Dweck (2006) considers that individuals with a growth mindset possess personality traits where the functional structure of the personality contains integrated components, including the cognitive mental components, and includes the functions of mind and brain, such as intelligence, mental capacity competence, and linguistic and verbal abilities and skills. In addition to cognitive beliefs and the level of performance of higher mental processes, memorization, remembering and others, where these features can be summarized, including that they possess high mental flexibility. Individuals with a growth mindset have high self-criticism to improve their performance in the tasks assigned to them, self-enhancement and high persistence to achieve goals. They have high motivational beliefs that affect attitude and behavior towards learning (Dweck, 2006), individuals have the trait of optimism. (Dweck, 2000) They have self-confidence. (Nussbaum & Dweck, 2008) and possess high self-esteem (Dweck, 2010).

Dweck (2012) explains that the growth mindset associated with intelligence and talent is subject to development and modification (Dweck, 2012), and the belief that intelligence is incremental means that it is an assessment of an individual's ability as variable or flexible and is useful for learning (Dweck, 2006). According to Aronson et al. (2002) that beliefs about intelligence can have a significant impact on the educational performance of individuals. Success is the product of a developing mindset. When students believe that their intelligence can be developed, they tend to value effort, commitment, and motivation to learn (Aronson et al., 2002).

# Methods for Developing a Growth Mindset

Research has identified several strategies that can be used to support a growth mindset

in students when used carefully and accurately. These strategies can prompt students to adopt challenges, persevere, evaluate feedback and use them to achieve a growth mindset. Hegert (2014) indicated that four strategies have been identified that can be used when supporting a growth mindset in students through (Wilson & Conyers, 2014):

- **Behavior Modeling:** Teachers should model what a growth mindset looks like in students by learning alongside them and demonstrating clearly that their abilities can be developed.
- **Create space for new ideas:** In order for people to adopt a growth mindset, they must feel comfortable and try new things.
- **Self-reflection: Learners need a lot of time to reflect on their learning and identify the next steps to advance** their learning further. Thus, individuals adopt a growth mindset when they realize that the learning, they have achieved leads to further progress (Roussin & Zimmerman 2014,).
- **Feedback: Doing** so requires a positive school culture. Feedback that encouraged the learning process was called targeted feedback, which helped students identify mistakes (Ostroff, 2016).

## Methodology

The researchers adopted the (descriptive approach), and the descriptive approach is one of the forms of analysis and interpretation, which is not limited to describing the phenomenon and collecting information about it, but extends to classifying, organizing and expressing this information quantitatively and qualitatively.

**Community and Sample Research**
The current research community consists of students of faculties from University of Babylon, which numbered (20) faculties in various scientific and humanitarian specializations whose total number is 27,367 male and female students. And they were distributed according to the gender variable that represented (42.2%), and the females represented (57.8%). In order to achieve the best distribution of the sample of students according to the variable of gender (male, female) and specialization (scientific, humanitarian), the researchers chose the sample of students from colleges according to the method of the stratified random sample with a proportional distribution  in order to represent the original community in a genuine manner using Stephen Thomson equation; where the size of the sample reached (378) male and female students, and then it was distributed according to the percentage of males and females. As for the specialization, the same method was followed, where the percentage of scientific faculties was (42%) and humanities faculties (58%) of the research sample group.

*Tool for Measuring Growth Mindset*
A scale was built by which to measure the growth mindset of university students, because the researchers were unable to obtain an appropriate scale for the research topic and its sample. The researchers followed the scientific procedures in constructing a growth mindset scale. The researchers relied on the theoretical framework and the definition of Dweek (2006), which defined as: the possibility of changing intelligence by effort and the tendency to think and make an extra effort to persevere when facing obstacles and setbacks (Dweek, 2006). Dweek gave the concept six components Motivation (7 items), attitude (5 items), perseverance (7 items), adversity (5 items), positive mindset (6 items) and that the number of answer alternatives for the growth mindset scale is (5) which are;(always applies to me, mostly applies to me, applies to me sometimes, applies to me rarely, never applies to me) so the grades are

given from (1,2,3,4,5) respectively.

Statistical indicators of the sample responses scores on the growth mindset scale were extracted, and it became clear that the distribution of students' scores on the scale is close to the (moderate) distribution according to the table below:

**Table (1):** *Descriptive statistical indicators of the Growth Mindset Scale*

| Highest degree | Lowest degree | range | Flatness error | flatness | Skewness error | skewness | variance | Standard deviation | mode | Median | Arithmetic mean | indicator |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 175 | 83 | 92 | 0.25 | 0.43 | 0.125 | -0.633 | 292.287 | 17.096 | 150 | 150 | 149.526 | value |

### *Discriminatory Force (the two terminal groups)*

(Anastasi, 1988) indicates that the optimum point for each of the two states of equilibrium is the one in the upper and lower groups (27%) (Anastasi, 1988). Then, the two terminal groups were chosen from the total score at a rate of (27%) for each of the lower and upper groups. In order to achieve an appropriate size in each group and a good contrast between them (Ghisell el al, 1981), it was found that all items of the growth mindset scale were distinguished when the calculated T-value was compared to the tabular value of (1.96) at the significance level (0.05) and the degree of freedom (204) and that all items are statistically significant.

### *Internal Consistency (relationship of the item to the overall score of the scale)*

The researchers resort to this method to find out whether each of the scale's items goes in the same path as the scale as a whole. Therefore, this method is one of the most accurate methods adopted in calculating the internal consistency of the items of the scale, and this is why according to the Pearson correlation coefficient to extract the correlation between the scores of each item and the total score of the scale. The results showed that all correlation coefficients are statistically significant at the level of significance (0.05) and the degree of freedom (376) when compared Pearson's tabular value of (0.098).

### *Integrity*

The researchers verified this type of integrity by means of two indicators: calculating the discriminatory power of the scale, and the relationship of the total score to the scale, which is an indicator of the construction's integrity, internal consistency by calculating the correlation coefficient of the degree of each item with the total score of the scale.

### *Stability (Cronbach's alpha coefficient of internal consistency)*

In order to verify the stability of the growth mindset scale, the researchers applied the equation (Alpha - Cronbach) on the scores of the sample members (378) of male and female students on the items of the scale consisting of (35) items, and it reached (0.787), which is a good stability coefficient.

### *Presentation, Interpretation and Discussion of the Results*

The first objective: to identify the growth mindset of university students. For the purpose of achieving this objective, the answers of the research sample members were analyzed on the growth mindset scale. It appeared that the arithmetic mean of their answers was (151,90) and with a standard deviation of (22,088), which is higher than the hypothetical mean of the scale of (105). Furthermore, for the purpose of identifying the statistical significance of the

apparent differences, the researchers used a single-sample t-test, and the results shown in Table (2) below:

**Table (2):** *The results of the t-test to indicate the difference between the arithmetic mean and the hypothetical mean of the growth mindset scale*

| Indication level | T value | | hypothetical mean | standard deviation | Arithmetic mean | The number of people in the sample | variable |
|---|---|---|---|---|---|---|---|
| | tabular | calculated | | | | | |
| 0.05 | 1,96 | 34,384 | 105 | 22,088 | 151,90 | 378 | growth mindset |

The calculated T-value amounted to (34,384), which is greater than the tabular value of (1.96), at a significance level of (0.05) and a degree of freedom (377), and the arithmetic mean of the growth mindset is equal to (151,90) which is greater than the hypothetical mean of (105). This means that there are statistically significant differences, meaning that university students possess a high level of growth mindset, and this is explained according to Dweck's theory, which clarified that the developmental mindset can be learned and changed. The majority of students, in light of technical and cognitive development and their access to advanced levels of knowledge, made them look at their intelligence as subject to change and to the possibility of developing it through effort, good use of strategies and perseverance (Elliott & Dweck, 1988). This result agreed with the findings of both Yeager & Dweck (2012) and Yeager & Walton (2011) studies, which showed that students possess a growth or developing mindset, and this is reflected in the fact that they adopt the concept that effort is the path to mastery and were more keen to invest hours of effort and practice.

The second objective: the statistically significant differences in the growth mindset of university students according to the gender variable (male - female) and specialization (scientific - humanitarian). The average degrees of the growth mindset of the male sample was (148.527) and the average degrees of the female sample (150.155), while the average degrees of scientific specialization reached (149.257) and the average degrees of humanitarian specialization (149.7302). For the purpose of identifying whether there are statistically significant differences in the degree of growth mindset according to the variables of gender and specialization, and the effect resulting from the interaction between the two variables, this was tested using binary analysis of variance, as shown in table (3):

**Table (3):** *The statistically significant differences in the growth mindset according to the variables of gender (males - females) and specialization (scientific - humanitarian)*

| F | Mean Square | df | Type III Sum of Squares | Source |
|---|---|---|---|---|
| 0.034 | 9.865 | 1 | 9.865 | specialization |
| 0.754 | 221.739 | 1 | 221.739 | gender |
| 0.008 | 2.226 | 1 | 2.226 | specialization*gender |
| | 293.957 | 374 | 109940.1 | Error |
| | | 378 | 8561577 | Total |
| | | 377 | 110192.2 | Corrected Total |

The results of the two-way analysis of variance in table (3) indicated that the gender that the calculated categorical value (0.034) is lower than the tabular value (3.84) at the level of significance (0.05), which means that there are no statistically significant differences explained in favor of females, meaning that females are higher in the level of growth mindset than males. This result can be attributed to the fact that the students live in the same educational reality and are subject to the same teaching methods, which gave them the same mental capabilities. As for the specialization, it appears that the calculated categorical value (0.754) is lower than the tabular value of (3.84) at the level of significance (0.05). That is, there are no statistically significant differences in favor of the humanitarian specialization. This indicates that the individuals of the research sample of the two specializations are not affected by their specializations, and this may be due to the fact that the educational institution attaches the same importance to the humanitarian and scientific disciplines. As for the interaction of gender * specialization, there are no statistically significant differences depending on the interaction of gender and specialization in the growth mindset, as the calculated t value reached (0.008), which is less than the tabular value of (3,84) at the level of significance (0.05), and thus there is no effect of gender with specialization on a growth mindset.

***The researchers put forward some recommendations and suggestions, including:***
- Benefiting from the current study in the field of developing ways of thinking as well as developing and preparing students for their future role in line with their personalities by other institutions.
- Building a growth mindset scale for secondary school students
- A study to find out the strategies used by school principals to support the growth mindset of learners.

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