Academic Journal of Research and Scientific Publishing | Vol 4 | Issue 43
Publication Date: 5-11-2022 ISSN: 2706-6495

Biology Gifted Students' Perception towards Learning Strategies, Learning Preferences, and Information Stabilization

By: Alhanof S. Algazlan

Al-Motaqadimah Schools for Smart Learning, Riyadh, Kingdom of Saudi Arabia

Email: Alhanoufalgazlan@gmail.com

Abstract

Biology is a natural science concerned with the study of life and living organisms. Biology makes a big contribution to our understanding of nature. Science, especially biology, has been reported to be one of the main interest areas for many gifted and talented students.

Considering the increased interest and attention in the gifted and talented students, a discussion group was held with 25 Biology Gifted Students (BGS) with the aim of examining Perception towards learning strategies, learning styles, and information stabilities. The students pointed out 10 different learning strategies, which varied in importance. The top three strategies were the experiential learning strategy, open discussion strategy and thirdly self-learning strategy. Whereas flipped learning strategy, role-playing strategy, and brainstorming strategy ranked the least important respectively.

The BGS's answers regarding learning styles varied but they asserted the importance of group learning style, competitive learning style and one-to-one learning style. The best ways to install and retain information were also discussed with Biology Gifted Student. The BGS stated that the best ways to retain and stabilize the information were, paraphrasing the information, writing, repetition, drawing and explaining to others. From these results, the researcher presented a set of recommendations and proposals including encouraging teachers of gifted students to benefit from the results of this study.

Keywords: Talented, Gifted, Students, Biology, Learning strategies

1. Introduction

Biology is an essential science for the advancement of humanity. Having well-educated biologists with the essential information, motivation, and abilities is crucial for scientific investigations and advancements. Directing the talented and gifted students to be future biology scientists will enrich the biology community and its achievements.

The phenomena of gifted students is thoroughly explored in modern education. However studies of gifted students' achievements in different disciplines are limited resulting in suboptimal teacher's utilization of the gifted students abilities in specific subjects. Many of these pupils' unique skills may be lost due to a lack of instructional approaches to unlocking their potential. (Kairullayevna, Rakhmatullayeva, 2021).

Talented and gifted students are highly motivated to complete numerous biology assignments and have an endless learning drive, passion, and inventiveness (Murat & Gulcan, 2018). This will facilitate the development of learning strategies, learning styles and more enjoyable solutions. The more fun, stimulating and engaging the subject becomes, the more motivated the students are (Sadi & Uyar, 2013). Another point is that the inspiration of skilled and talented students is enhanced when they experience topics appropriate to their level (Özarslan, & Çetin, 2018).

Also the effective use of modern teaching techniques in biology can increase the interest of students in mastering the basics of science (Kairullayevna, Rakhmatullayeva, 2021).

So teachers of gifted students should be concerned in the development of higher order thinking skills and should focus on suitable teaching approaches that promote divergent, convergent and creative thinking.

Al-Hadabi (2010), stated that teachers are critical teaching and learning components in gifted programs. They can create an environment that encourages the development of thinking skills and creativity of their gifted students.

Therefor teachers of the gifted students should strive to improve learning strategies, learning styles, materials, differentiated curriculum, high quality learning process, and information stability .(Syafril,.et al., .2020)

Al-Hadabi (2010), also stated that teachers should double their efforts to discover the mental, emotional, and affective aspects that are characteristic of gifted children, allowing them to identify and utilize teaching strategies that meet the needs of gifted students.

But the studies on the scientific attitudes of gifted students, factors affecting their attitudes and how to improve their attitudes are quite limited in the literature (Özarslan,2018)

Hence the main aim is to study BGS's cognition related to learning strategies, learning styles, and information stability.

1.1. Research questions

- What are the views of Biology Gifted Students' towards the best learning strategies?
- What are the Biology Gifted Students' Perceptions towards the best learning styles?
- What are the views of Biology Gifted Students' towards information stabilization?

2. Research Methods

2.1. Participants

The research is concerned with Biology Gifted Students' Perception towards learning strategies, Learning Preferences, and information stabilization. A total 25 Biology Gifted Students were asked about their perceptions towards learning strategies, learning styles, and information stabilities.

2.2. Data Collection Tool

The most suitable way to explore Perception towards learning strategies, learning styles, and information stabilities is to utilize data collection tools usually associated with qualitative approaches such as discussion groups or focus groups (Hoseth & McLure, 2007).

2.3. Collection of Data

The students were chosen based on their wish to participate in this new educational experience. We held a discussion group with 25 Biology Gifted Students to ask them about their perceptions towards learning strategies, learning styles, and information stabilities.

The discussion was organized and managed by the researcher and lasted for an hour divided equally between the main topics mentioned earlier. Notes were also taken in preparation for the analysis stage of this study.

2.4. Data Collection Tools

We held a discussion group with 25 Biology Gifted Students (BGS) to ask them about their educational experience as gifted biology students

The discussion group focused on BGS's Perceptions towards Learning Strategies, Learning Preferences, and Information Stabilization. The discussion was organized and managed by the researcher and lasted for an hour divided equally between the main topics mentioned earlier. Notes were also taken in preparation for the analysis stage of this study.

2.5. Validity and Credibility

The research validity was ascertained by involving two professional individuals as moderators and evaluators. These two individuals were responsible for evaluating and assessing the overall procedure. The consistency of inter-raters was 83.3% assuring the credibility of research study and results.

3. Results and Findings

1- The discussed views of BGS toward Learning Strategies revealed 10 different Strategies, which varied in significance. The top three Learning Strategies were the experiential learning strategy (24/25), followed by the open discussion strategy (23/25) then self-learning strategy (21/25). Whereas, flipped learning strategy (2/25), role-playing strategy (3/25), and brainstorming strategy (5/25) ranked the least important as presented in table 1:

Table 1: Frequencies of Learning Strategies

Frequencies of Learning Strategies out of total 25	
Top 3 **Strategies**	
24	Experiential learning strategy
23	Open discussion strategy
21	Self-learning strategy

Least 3 **Strategies**	
2	Flipped learning strategy
3	Role-playing strategy
5	Brainstorming strategy

2-The discussion with BGS about learning preferences showed the Group Learning style (24/25), Competitive Learning style (20/25) and One-to-one learning style (12/25) were the highest preferred learning styles as in Table 2.

Table 2: Frequencies of preferred learning styles

Frequencies Of learning styles out of 25	
24	Group learning style
20	Competitive learning style
12	One-to-one learning style

3-Ways to install and retain information (Information Stabilization) are presented in Table 3

Table 3: Top Frequencies of ways to install and retain information

Frequencies Of the ways to retain information out of 25	
24	Paraphrasing the information
23	Writing
23	Repetition
20	Drawing
20	Explaining to others

4. Discussion and Conclusion

The education policy in the Kingdom of Saudi Arabia emphasizes the discovery of talented students and the provision of appropriate educational care for them. (https://moe.gov.sa/en/pages/default.aspx website of the Ministry of Education in the Kingdom of Saudi Arabia)

Previous studies emphasized the importance of the role of the teacher and what is introduced in the classroom in developing the skills and abilities of the gifted.(Rita & Martin-Dunlop, 2011, Al-Hadabi, 2010)

However, Hughes & Murawski (2001) confirmed discrimination in teaching gifted students does not usually occur within the general classroom, so collaboration between general education teachers and the gifted is critical to ensure appropriate services for high-ability students.

In this study, we documented students' experience in gifted classes, and students expressed their views on learning strategies, learning styles, and the stability of information.

Summarizing all the above discussion, it has been observed that there are different learning strategies, favoured by gifted students such as experiential learning strategy, open discussion strategy, self-learning strategy and different styles of teaching. Additionally, if students struggle with memorizing and using biological information, they can also adopt a range of strategies such as paraphrasing, writing, repetition, drawing, etc.

We hope that the research results will be useful for general education teachers and talented people

5. Suggestions and Recommendations:

- The study recommends utilizing the top learning strategies, learning preferences and information stabilization found in this study in teaching the Biology Gifted Students.

- Conducting the same study on gifted students in other subjects.

6. References

Al–Zoubi, S., & Bani Abdel Rahman, M. (2016). Talented students' satisfaction with the performance of the gifted centers. Journal for the Education of Gifted Young Scientists, 4(1), 1-20. DOI: http://dx.doi.org/10.17478/JEGYS.2016114754

Hoseth, A. E., & McLure, M. (2007). Perspectives on E-books from instructors and students in the social sciences.

Hughes. C., & Murawski W.(2001). Lessons From Another Field: Applying Coteaching Strategies to Gifted Education. Gifted Child Quarterly. 2001;45(3):195-204. doi:10.1177/001698620104500304

Murat Ozarslan, G. C. (2018). Effects of biology project studies on gifted and talented students' motivation toward learning biology.

Özarslan, M., & Çetin, G. (2018). Effects of biology project studies on gifted and talented students' motivation toward learning biology. *Gifted education international*

Özarslan, M. (2018). Gifted and Talented students' views about Biology activities in a Science and Art Center. *Science Education International* .

ÖZARSLAN, M. (2018). The Impact of Biology Project Studies on the Scientific Attitudes of Gifted and Talented Students. *ERCIYES JOURNAL OF EDUCATION (EJE)*.

Özarslan, M., & Çetin, G. (2019). Gifted and Talented Students' Views about Biology Activities in a Science and Art Center. *Science Education International*.

Rita, R.D., Martin-Dunlop, C.S.(2011). Perceptions of the learning environment and associations with cognitive achievement among gifted biology students. Learning Environ Res 14, 25–38 (2011). https://doi.org/10.1007/s10984-011-9080-4

Sadi, Ö., & Uyar, M. (2013). The Relationship between Cognitive Self-regulated Learning Strategies and Biology Achievement: A Path Model. *Procedia-Social and Behavioral sciences.*

Kairullayevna, Rakhmatullayeva. (2021) . "Modern Pedagogical Technologies Used to Identify Gifted Students in Biology Teaching." European Journal of Humanities and Educational Advancements, vol. 2, no. 10, 2021, pp. 211-214

Syafril, S., Yaumas, N. E., Ishak, N. M., Yusof, R., Jaafar, A., Yunus, M. M., & Sugiharta, I. (2020). Characteristics and educational needs of gifted young scientists: A focus group study. Journal for the Education of Gifted Young Scientists, 8(2), 947–954. https://doi.org/10.17478/JEGYS.691713

Doi: doi.org/10.52132/Ajrsp.e.2022.43.3