PEAJEPS ISNI 0502828001 ISSN : 2789-1941
Vol 5, No 13, August 2024, pp 135 - 164
مجلة علمية محكمة
مجلة رابطة التربويين الفلسطينيين للآداب والدراسات التربوية والنفسية

(لاستعمال هيئة التحرير) تاريخ الإرسال (20-05-2024)، تاريخ قبول النشر (17-07-2024)

دور المدرسة في تنمية ثقافة البحث والاكتشاف والتطوير لدى الطلبة الموهوبين -مدرسة الصداقة الماليزية الثانوية للبنات بضاحية صباح الخير أنموذجا-	اسم الباحث الأول باللغتين العربية والإنجليزية	ايناس فؤاد أبو فرحة Enas Fouad Abu Farha
	اسم الباحث الثاني باللغتين العربية والإنجليزية :	
	اسم الباحث الثالث باللغتين العربية والإنجليزية :	
The role of the school in developing a culture of research, discovery and development among gifted students – the Malaysian Friendship Secondary School for Girls in the Sabah Al-Khair suburb as a model -	[1] اسم الجامعة والدولة (للأول) باللغتين العربية والإنجليزية	كلية التربية -الجامعة العربية الأمريكية-جنين Arab American University - Jenin
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الملخص :

يهدف هذا البحث إلى دراسة دور المدرسة في تعزيز ثقافة البحث، الاكتشاف، والتطوير بين الطلبة الموهوبين في مدرسة الصداقة الماليزية الثانوية للبنات بضاحية صباح الخير، وفهم كيفية تأثير هذه الجهود على تطوير المهارات والقدرات لدى الطلاب. تم استخدام مزيج من المقابلات الشخصية مع المعلمين والطلاب، والملاحظة المباشرة للأنشطة المدرسية ذات الصلة، إضافة إلى تحليل الوثائق والتقارير المدرسية.

شملت الدراسة عينة من المعلمين المختصين في تدريس الطلاب الموهوبين، وعينة من الطلاب الموهوبين الذين يشاركون في برامج البحث والتطوير في المدرسة. أظهرت النتائج أن البرامج والأنشطة المدرسية الموجهة نحو البحث والاكتشاف قد تسهم بشكل كبير في تعزيز مهارات الطلاب في هذه المجالات، وتحفيزهم على الابتكار والتفكير النقدي. كما أشارت النتائج إلى أن التفاعل المستمر مع المعلمين الملهمين له تأثير إيجابي على تطوير الطلاب الموهوبين.

أوصت الدراسة بضرورة التخفيف من الأعباء الكتابية على الهيئات التدريسية للمساعدة في تهيئة أجواء نفسية مريحة للطلاب والتفرغ من اجل تطوير تلك المواهب وضرورة مزيد من التفاعل بين المدرسة والمجتمع المحلي لدعم البرامج التعليمية، وتطوير استراتيجيات لتقييم فعالية الأنشطة التعليمية، بالإضافة إلى تقديم دعم مستمر للمعلمين لتعزيز مهاراتهم في تعليم البحث والتطوير للطلاب الموهوبين.

كلمات مفتاحية: (ثقافة البحث – الاكتشاف – التطوير – الطلبة الموهوبين)

Abstract:

This research aims to study the school's role in promoting a culture of research, discovery, and development among gifted students at the Malaysian Friendship Girls' Secondary School in the Sabah Al-Khair suburb, and to understand how these efforts affect the development of students' skills and abilities. A combination of personal interviews with teachers and students, direct observation of relevant school activities, as well as analysis of school documents and reports was used.

The study included a sample of teachers specialized in teaching gifted students, and a sample of gifted students who participate in research and development programs at school. The results showed that school programs and activities directed towards research and discovery may contribute significantly to enhancing students' skills in these areas, and motivating them to innovate and think critically. The results also indicated that continuous interaction with inspiring teachers has a positive impact on the development of gifted students.

The study recommended the need to reduce the clerical burden on teaching staff to help create a comfortable psychological atmosphere for students and devote themselves to developing those talents, and the need for more interaction between the school and the local community to support educational programs, and develop strategies to evaluate the effectiveness of educational activities, in addition to providing continuous support to teachers to enhance their skills. In teaching research and development to gifted students.

Keywords: (Culture of research - discovery - development - gifted students)

1. Introduction

1.1. Background of the Malaysian Friendship Girls Secondary School

Friendship Girls' Secondary School in Malaysia focuses on promoting inquiry and intellectual development among its gifted students. The school offers quality education with an emphasis on equal access, cultivating critical and creative thinking skills. Educational programs encourage research, exploration, and the use of technology to create a nurturing environment for students to thrive. Insights from teachers and students help evaluate teaching methods and learning experiences, contributing to fostering a culture of inquiry. Assessment strategies are continually improved to enhance research and development skills. Community involvement is crucial in supporting educational endeavors, establishing a supportive environment for students to excel in their research pursuits. The school prioritizes ongoing support for teachers through professional development opportunities to enhance their teaching skills. Overall, Friendship Girls' Secondary School serves as a model of excellence in nurturing a research culture among its gifted students. Collaboration with stakeholders and a commitment to delivering quality education set the stage for innovative thinking and scholarly pursuits among the student body. See references: (Malaysia, 2013, pages 11-15)[9], (Krasnoff, 2016, pages 21-25)[5].

1.2. Purpose of the study

This research focuses on the impact of Malaysian Friendship Girls Secondary School in cultivating a research-oriented environment for talented students. It explores how educational programs at the school foster critical and innovative thinking skills. The methodology involves interviews and observations with teachers and students to assess the effectiveness of programs in enhancing research capabilities. Findings from interviews will shed light on teaching methodologies and learning experiences related to research culture. Assessment strategies for educational activities will be examined to understand current approaches. Community engagement will be explored to support teachers in improving their teaching skills. By involving stakeholders, the study aims to create an environment conducive to nurturing research abilities among gifted students. Professional development opportunities for teachers will be offered to enhance teaching capabilities. The ultimate goal is to demonstrate how schools can play a key role in fostering a research culture among gifted students. See references: (Education, 2023)[15], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 161-165)[7], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 176-180)[7], (Malaysia, 2013, pages 201-205)[9], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 136-140)[7].

1.3. Research objectives

The primary focus of this study conducted at the Malaysian Friendship Girls Secondary School is to explore the influence of educational institutions in fostering a culture of research among talented

students. The research objectives are centered around investigating the customized educational programs designed for gifted students, with an emphasis on activities related to research, exploration, and growth. Moreover, the study aims to assess how these programs contribute to nurturing critical and innovative thinking abilities in gifted students.

In addition, the research seeks to delve into the various school initiatives that promote research and development, including extracurricular events focused on research and exploration, as well as the integration of technology in educational practices. Through interviews with teachers and students, the study aims to gain insights into the teaching methodologies utilized by teachers and the learning experiences of students within the context of a research-oriented culture. Lastly, the study will evaluate assessment methods for educational activities and provide recommendations for enhancing these strategies to further bolster the development of a research culture among gifted students. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 71-75)[7], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 166-170)[7], (The School Counselor and Equity for All Students, 2024)[3].

2. Literature Review

2.1. Definition of gifted students

Exceptional students are those who possess remarkable abilities and talents that distinguish them from their peers. These individuals often demonstrate high levels of intelligence, creativity, and problem-solving skills. It is imperative for educators to identify the traits of exceptional students in order to offer them tailored learning experiences that cater to their distinct intellectual and emotional requirements.

Studies show that exceptional students may not perform up to their potential in academic settings due to various factors, such as a lack of challenging curriculum, insufficient support from teachers, and external influences like home environment or peer interactions. To tackle this issue, educators should personalize programs for underperforming exceptional students and provide them with a variety of intervention options customized to their specific needs.

Furthermore, gifted students from diverse cultural backgrounds may encounter additional obstacles to academic success because of factors like language proficiency, family dynamics, or community resources. Schools must establish inclusive environments that accommodate the diverse needs of all gifted students, regardless of their cultural or economic backgrounds.

In summary, identifying exceptional students entails acknowledging their extraordinary abilities and offering them opportunities to cultivate their talents through rigorous and engaging educational programs. By grasping the unique requirements of exceptional students and implementing effective support strategies to assist them in their academic journey, schools can facilitate a culture of

distinction and originality among these gifted individuals. See references: (Reis, 2015)[2], (Reis, 2000)[6].

2.2. Importance of research, discovery, and development in education

In education, the focus on knowledge and innovation is crucial, especially for students with exceptional abilities. Disparities in graduation rates exist between Black and Hispanic students compared to their white peers, along with inequalities in identifying gifted students. Many educational institutions struggle to adequately support advanced learners, particularly from low-income and minority backgrounds, due to reliance on standardized testing and rigid admission criteria.

There is a disconnect between academic materials and the needs of highly capable learners, leading to disengagement among bright students. Gifted programs often lack focus on fostering advanced research skills. To address these challenges, integrating practices from gifted education into standard programs can promote critical thinking skills for all students. Valuing cultural diversity equally and recognizing it as a strength can help establish empowering learning environments.

Creating a culture of exploration, investigation, and growth in schools is essential for unlocking the potential of gifted students from diverse backgrounds. By implementing culturally sensitive approaches and providing challenging opportunities for all students, educational inequalities can be addressed, leading to a more inclusive and supportive learning environment. See references: (Reis, 2015)[2], (Department, 2019, pages 6-10)[8], (Education, 2023)[15], (The School Counselor and Equity for All Students, 2024)[3].

2.3. Previous studies on fostering a culture of research in schools

Prior research has emphasized the significant role that teachers play in pinpointing students who could benefit from specialized and gifted educational programs. However, studies have revealed a bias in how teachers interpret academic and behavioral challenges based on students' races. Notably, white boys are more likely to be viewed as facing academic hurdles, while boys of color are often labeled as having behavioral issues. This underlines the intricate nature of racial bias within educational environments.

Moreover, current research has indicated an overrepresentation of students of color in special education programs and a lack of representation in gifted education initiatives. This disparity prompts inquiries into the rationale behind referrals for assessment. Although 75% of referrals originate from teachers, concerns have been raised regarding potential biases influencing these decisions.

The results point towards the necessity for further exploration into how student ethnicity and race impact teachers' perceptions of students' requirements for specialized and gifted education services.

By addressing these biases and advocating for a more inclusive method for identifying gifted students, schools can cultivate an equitable culture that supports all students' academic growth. See references: (Reis, 2015)[2], (Communications, 2024)[4].

Quote number	Specific response
1	*....the bullying and stuff came to a head and the scientific work was looked at because this person had brought up kind of bullying and harassment allegations against the supervisor. So they in turn looked at the work that this person had been doing and they'd been falsifying…*
2	*Lack of funding and the need to 'sell' your research, often leads to many researchers fabricating and embellishing data. This leads to the inability of genuine researchers to replicate findings, wasting precious time and resources, giving up and then their contracts not being renewed because the boss doesn't get the 10 publications per year they demand.*
3	*I believe that the whole Academia environment is corrupted and has lost its true vision. The lack of funding is making researchers to sometimes make-up data to get grants or to publish meaningless papers just for the sake of raising the numbers.*
4	*being used by post docs and high level senior researchers' who take credit for your research work ideas and use info in your recruitment applications unethically for themselves…bias recruitment towards international students and overseas post docs who are extremely competitive and who want to get permanent residency and who also bully harass local students and researchers' to take over their research and jobs.*

Quote number	Specific response
5	*…what they wanted to see result-wise wasn't what I was seeing. And so I was being accused of misconduct because I wasn't seeing what they wanted me to see, and I wouldn't change that.*
6	*Not saying, 'do this' but pressure to – if something were to fail to almost keep saying, 'Do it again, do it again, do it again, do it again'' in order to get you to make it work. And those people have just said, 'No, it doesn't and I'll spend the whole year repeating it but it's not going to change the outcome'.*
7	*Q But are they getting their names on because they've actually been involved? Are we flouting the convention here?* *A They haven't done anything.* *Q So his investment in them is…* *A Is purely so they can get grant funding through having papers.*

Table 1: (source: reference (Doran et al., 2021)[18])

Quote number	Specific response
1	*I just find the other aspects of the job and the pressure to perform very difficult. I feel like there is a big clock ticking, and my productivity is always being judged relative to the steady ticking of that clock regardless of the ups and downs and other life circumstances.*
2	*I just wish that the environment didn't feel so*

Quote number	Specific response
	pressured and competitive. I have seen so many great ECRs leave research because of the challenges of finding work, meeting expectation, attracting grants. I think the field is too competitive and does not take care of our ECRs and we are poorer for it.
3	*I am currently looking outside academia to get away from the culture of harassment... it takes too much of a toll on my health... but I would stay in academia if I were to find a position that didn't subject me to harassment by a supervisor.*
4	*Job security is based on churning out a large quantity of publications, regardless of quality.* *Three-year fixed-term contracts are very short. In the first 2 years, I focus on my research, however, in my final year, I am thinking about where I am going next. It takes a lot of time and effort to find something else within the research field. I find having an 'exit strategy' important.*
5	*Having said that, the pressures of the job have considerably increased in the last ten years and the general expectation is that you should work outside normal working hours, without getting paid extra... And that being able to work in academia is a privilege, so one should do whatever it takes to continue in Academia. In my opinion this is a very distorted and dangerous vision, which puts lots of pressure on ECRs, in particular women who are usually starting families at this stage in their careers.*
6	*At the point of my career, where I am trying to expand my group to potentially have an independent research group, the stresses*

Quote number	Specific response
	around funding are a considerable issue for me (as for everyone else, probably). While I have been relatively successful with funding, I feel the pressure of having to support not only my own research, but also the research of those who work with me, and that holds me back from pursuing opportunities that are available to me as I don't want my group to expand too quickly. It also means that I put up with being paid on a lower pay scale than I should be, rather than going for promotion, because I want to conserve funding. This is certainly a constraint on my ability to expand my career prospects.
7	*The personal toll it takes to have an academic position is immense. The job insecurity, being unable to plan for anything beyond 1-maybe 2 years is debilitating. Constantly responding to this opportunity, and that opportunity, doing good clever work and being available at all times is tough beyond measure. Not knowing if all this personal sacrifice and tough hard work are even going to be worth it is downright demoralizing. It might all work out, and it might not - but when do you pull the pin??*
8	*Mental health of ECRs is overlooked and the universities treat us as second class employees that are disposable.*

Table 2: (source: reference (Doran et al., 2021)[18])

3. Methodology

3.1. Research design

The research design for establishing a research culture among gifted students at Malaysian Friendship Girls Secondary School will take a holistic approach. It aims to evaluate the current school environment, including educational programs and community involvement efforts. Interviews with educators and students will provide insights on teaching methods and the impact of existing programs on critical thinking skills. Data will be collected through interviews and observations to understand perceptions of the research culture. Analytical techniques will involve qualitative approaches to uncover themes and patterns in the data. By examining various sources of information, the study aims to offer a comprehensive understanding of factors influencing the development of a research culture at the school. The research design seeks to provide valuable insights on how to enhance the nurturing of research skills among gifted students by evaluating current practices and suggesting recommendations for improvement. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 41-45)[7], (Reding, 2020, pages 1-5)[12].

3.2. Participants

Participants for this study will be carefully chosen from Malaysian Friendship Girls Secondary School, with a focus on gifted students spanning different grade levels. The selection criteria will prioritize students who exhibit a strong inclination towards research, exploration, and innovation. Upon conducting interviews, it becomes apparent that these students harbor a wide array of career aspirations, ranging from veterinary medicine to the performing arts, music to psychology, showcasing their diverse passions and ambitions. Their perspectives will provide valuable insights into the impact of educational initiatives on nurturing a research-oriented environment.

Additionally, the participant pool will encompass educators who hold pivotal roles in guiding and fostering gifted students towards excellence in research. Input gathered from teacher interviews will illuminate the teaching strategies employed to stimulate critical and imaginative thinking skills among students. A holistic evaluation of educational efforts aimed at fostering research and development necessitates understanding both teacher and student perspectives.

In essence, participants in this study will form a diverse cohort consisting of gifted students and dedicated teachers from Malaysian Friendship Girls Secondary School. Their collective experiences and feedback will play a fundamental role in evaluating the school's endeavors towards cultivating a culture of research among gifted individuals. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 116-120)[7], (Rebecca D. Napier, 2023)[1].

Participant	Stated career goal interview 1	Stated career goal interview 2

Participant	Stated career goal interview 1	Stated career goal interview 2
Grades 8/9		
AM	Veterinarian	Primary school teacher
*EM	Homicide detective, author	Homicide detective
AW	Nutritionist	Optometrist
*SB	Actress	Actress
*TM	Musician, music teacher	Musician, music journalist
EG	Light technician	Psychologist
Grades 10/11		
*HV	Secondary art teacher	Primary teacher
*NC	Secondary science teacher	Secondary math and science teacher
*RB	Obstetrician then professor	Obstetrician
*KK	Surgeon	Surgeon
GB	Teacher	Physiotherapist
*OL	Medical officer	Medical officer
*MP	Chemical engineer	Chemical engineer
Grades 12/G		
*LS	Fitness trainer	Fitness trainer
*CL	Interior designer	Interior designer
EW	International lawyer	Teacher then principal
*CS	Speech pathologist, model	Speech pathologist, model
AS	Midwife, model	Translator, model

Table 3: Participants' Career Goals. (source: reference (Rebecca D. Napier, 2023)[1])

Discipline	**Percentage of Australian academic STEMM workforce	Percentage of respondents to this survey
Mathematical Sciences	3.8%	2.8%
Physical Sciences	4.3%	8.1%
Chemical Sciences	4.7%	5.7%
Earth Sciences	3.5%	3.0%
Environmental Sciences	3.2%	4.0%
Biological Sciences	12.6%	20.9%
Agricultural and Veterinary Sciences	4.5%	1.4%
Information and Computing Sciences	6.9%	2.2%
Engineering	15.4%	3.6%
Technology	2.1%	0.8%
Medical and Health Sciences	38.9%	47.5%

Table 4: (source: reference (Doran et al., 2021)[18])

3.3. Data collection methods (personal interviews, direct observations)

In this study, the data collection methods will involve conducting personal interviews and making direct observations at Malaysian Friendship Girls Secondary School. These approaches aim to gather valuable insights from both educators and students regarding the cultivation of a research culture among gifted individuals.

The personal interviews with teachers will delve into their teaching techniques, strategies for encouraging research and exploration, and any challenges they face in fostering a research-oriented

environment within the school. By interacting directly with teachers, effective methods for promoting critical and imaginative thinking skills among gifted students can be identified.

Conversely, student interviews will offer important perspectives on their educational experiences related to research and development activities. Assessing the students' perception of these initiatives, their impact on academic progress, and the level of engagement with such programs is essential for evaluating the current educational efforts at the school.

Furthermore, direct observations will complement the interview findings by providing researchers with firsthand exposure to the implementation of educational programs that promote research and development. Observing extracurricular activities centered around research, exploration, and technology integration will offer valuable insights into the structure, execution, and reception of these initiatives by students.

By combining personal interviews with educators, feedback from students through interviews, and direct observations of school activities that foster research and development, this study aims to present a comprehensive analysis of how schools contribute to nurturing a research culture among gifted students. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 41-45)[7], (College of Education Course Descriptions, 2024)[14], (Reding, 2020, pages 1-5)[12].

3.4. Data analysis techniques

To foster a research culture among gifted students at Malaysian Friendship Girls Secondary School, aligning data analysis methods with school objectives is crucial. Following guidelines from Kansas State Board of Education, using data for evaluation and creating an inclusive environment is key. Educators should focus on safety, responsiveness, and inclusivity to tailor research initiatives for student success.

Inspired by the College of Education's commitment to continuous improvement and social justice, data analysis techniques should assess equal access to resources and opportunities. Examining resource allocation impact on student outcomes and advocating for fair distribution can better support gifted students in research pursuits.

Skills from courses like "Measurement" and "Educational Research" provide educators with tools to effectively locate, interpret, and analyze educational research. Proficiency in data analysis allows teachers to evaluate programs enhancing critical and creative thinking skills among gifted students.

Incorporating these data analysis techniques into research culture will empower gifted students at Malaysian Friendship Girls Secondary School to engage in meaningful research activities that ignite intellectual curiosity and academic potential. See references: (College of Education Course Descriptions, 2024)[14], (Reding, 2020, pages 1-5)[12].

4. Educational Programs at Malaysian Friendship Girls Secondary School

4.1. Overview of educational programs for gifted students

The educational initiatives for gifted students at Malaysian Friendship Girls Secondary School are focused on creating a stimulating and challenging atmosphere that promotes the intellectual growth of these students. As evidenced by previous research, it is crucial to offer personalized learning opportunities to students with unique needs, such as gifted individuals. The Ministry of Education in Malaysia acknowledges the significance of identifying and nurturing gifted students to ensure they achieve their maximum potential.

The programs at the school concentrate on cultivating critical and creative thinking skills through a variety of activities like research projects, discovery tasks, and developmental endeavors. By integrating these components into the curriculum, students are motivated to explore new concepts, think analytically, and participate in inventive projects. These educational programs not only boost the academic capabilities of gifted students but also cultivate a culture of inquisitiveness and exploration.

Furthermore, collaborations with private industries and research organizations play a pivotal role in advancing the gifted education programs at the school. By comparing against other high-achieving national programs and adopting best practices, the school guarantees that its offerings remain cutting-edge and efficient in catering to the needs of gifted learners.

In summary, the educational programs at Malaysian Friendship Girls Secondary School for gifted students are structured to provide a nurturing and inspiring environment where these students can excel intellectually and creatively. See references: (Figgett, 2019, pages 31-35)[10], (Malaysia, 2013, pages 196-200)[9], (The School Counselor and Equity for All Students, 2024)[3].

4.2. Focus on research, discovery, and development activities

Malaysian Friendship Girls Secondary School focuses on nurturing gifted students through specialized programs in Science, Technology, and Mathematics, as well as School Holiday Camps. Emphasizing critical thinking and creativity, the school provides access to residential schools for high-achieving students and encourages a research-oriented mindset through project-based activities and collaborative learning. By partnering with private industries and research institutions, the school ensures that its educational programs remain innovative and aligned with national best practices. Ultimately, the school aims to cultivate future leaders by creating an environment that supports academic growth and talent development. See references: (Malaysia, 2013, pages 196-200)[9], (Malaysia, 2013, pages 121-125)[9].

4.3. Impact assessment on critical and creative thinking skills

Evaluating the influence of critical and creative thinking skills on gifted students is crucial for guiding their educational path. The Malaysian Education Blueprint emphasizes nurturing 21st

Century Skills like critical and creative thinking to prepare students for future challenges. Studies show that fostering exploration and innovation in schools can significantly improve these skills.

A national strategy for gifted students highlights the importance of recognizing and meeting their unique needs. Tailored programs can create an environment conducive to developing critical and creative thinking. Providing personalized support tailored to each school's requirements ensures all students have access to resources to enhance their cognitive abilities.

Culturally responsive teaching emphasizes the significance of encouraging students to analyze information critically from diverse perspectives to promote creativity. Creating an inclusive classroom that respects cultural diversity and encourages teamwork empowers students to think independently and make informed decisions.

At Malaysian Friendship Girls Secondary School, evaluating the impact of critical and creative thinking skills on gifted students is key to shaping their learning journey. By prioritizing research, discovery, and development activities, schools can effectively enhance these essential skills and prepare students for success in a constantly evolving world. See references: (Kim, 2011, pages 6-10)[13], (Malaysia, 2013, pages 121-125)[9], (Krasnoff, 2016, pages 1-5)[5].

5. School Activities Promoting Research and Development

5.1. Extracurricular activities related to research and discovery

Engaging in extracurricular activities is essential for promoting a research culture among gifted students at Malaysian Friendship Girls Secondary School. The Science Club offers hands-on experiences with experiments and data analysis, fostering a love for exploration and scientific inquiry. The annual Research Symposium showcases student projects in various fields, encouraging interdisciplinary research. Collaborations with industry partners and universities provide real-world exposure to research practices. These activities aim to cultivate critical thinking, problem-solving, and communication skills while empowering students to become future leaders in their chosen fields. See references: (Kim, 2011, pages 6-10)[13], (Reis, 2000)[6].

5.2. Integration of technology in educational activities

Incorporating technology into educational practices is paramount in enriching the learning journey of talented students. By integrating digital resources and tools, schools can enhance the opportunities for students to participate in research, exploration, and innovation activities more efficiently. Technology enables students to access a vast array of information, collaborate on projects, and present their discoveries in inventive ways.

For example, the utilization of online platforms and virtual classrooms can facilitate communication and teamwork among gifted students, allowing them to collaborate on research initiatives despite

geographical barriers. Additionally, digital tools like video conferencing, interactive simulations, and educational applications can improve the learning process by providing practical experiences and real-world applications of theoretical concepts.

Furthermore, technology can support customized learning experiences for talented students by catering to their unique needs and interests. Adaptive learning software can deliver tailored instruction based on students' capabilities and preferences, enabling them to advance at their individual pace. This personalized approach ensures that gifted students are appropriately challenged and have the chance to delve deeply into advanced subjects.

Overall, integrating technology into educational activities at Malaysian Friendship Girls Secondary School empowers gifted students to enhance their critical thinking skills, creativity, and problem-solving capabilities. By harnessing digital resources and tools, schools can establish a dynamic learning environment that nurtures a culture of research among talented students. See reference (Gottschalk & Weise, 2023, pages 46-50)[11].

6. Teacher and Student Interviews

6.1. Findings from teacher interviews regarding teaching methods

The outcomes of the teacher interviews conducted at Malaysian Friendship Girls Secondary School regarding teaching methodologies unveiled some crucial insights. Educators stressed the importance of being culturally sensitive in their teaching approaches to better address the diverse learning requirements of talented students. They emphasized the value of recognizing and appreciating cultural variations among students and integrating teaching strategies that align with their various learning preferences. Teachers acknowledged the significance of fostering a supportive learning environment through the development of socio-cultural awareness, positive attitudes, commitment to change, constructivist perspectives, and understanding of students' life experiences.

Furthermore, educators highlighted the necessity of incorporating multiple viewpoints in teaching, assessing student comprehension through diverse methods, identifying students' prior knowledge before instruction, and incorporating real-world experiences into classroom teachings. They emphasized the validation of students' cultural identities through inclusive classroom practices and instructional materials that promote diversity and encourage student involvement.

Additionally, teachers underscored the importance of acknowledging individual differences among students and addressing their distinct learning needs based on identified strengths and weaknesses rather than predetermined assumptions about cultural backgrounds. They emphasized the use of familiar practices from students' cultures in teaching to enhance inclusivity and bolster student achievement.

In conclusion, the teacher interviews underscored a strong emphasis on culturally responsive teaching practices tailored to the diverse needs of gifted students at Malaysian Friendship Girls Secondary School. See references: (Krasnoff, 2016, pages 21-25)[5], (Krasnoff, 2016, pages 6-10)[5], (Krasnoff, 2016, pages 1-5)[5].

Quote number	Specific response
1	*The most significant impact has been on my productivity for the few months after I move. Settling into a new environment takes time. I had little to no support to find accommodation[sic], so much of my time was spent on this. The mental/emotional drain of a move is also significant.*
2	*Starting from scratch with a whole new group of colleagues who don't know you and struggling to find research momentum in a new institute, city and country, all of which is very different to previous places you've lived before. Everything is done differently and you're constantly learning the hard way, which takes time and significantly eats into your research progress. It's also lonely and can inhibit the development of long-lasting professional and personal relationships because you have no idea how long you'll really be in the country.*
3	*Lack of stability, no ability to build long term friendships and networks, relationship breakdowns, financial costs, inability to buy a house.*
4	*Loss of traction and momentum in science. Loss of family and friend support. Starting life from scratch. Financial loss from moving costs, to higher rents in locations I moved to.*
5	*Relocation meant my partner having to give up her job*

Quote number	Specific response
6	*Separation from family and friends, impact on spouse's career, new start at new institutions take time and are somewhat unproductive.*
7	*Moving internationally with a young family has been extremely difficult. Lack of family support with both myself and husband working full time is extremely difficult to manage.*
8	*Moving to further career progression - like an international fellowship visit - should not be applicable to all fields of research. Furthermore in families with two working adults this is unrealistic and archaic. There are other options to building an international reputation. I moved internationally to complete my PhD.*

Table 5: (source: reference (Doran et al., 2021)[18])

6.2. Findings from student interviews about learning experiences

Upon conducting interviews with students at Malaysian Friendship Girls Secondary School, it was evident that the cultivation of a research culture is pivotal in their learning experiences. The students expressed a strong inclination towards engaging in hands-on research activities that would enable them to delve into their interests and hone their critical thinking abilities. They stressed the significance of being intellectually challenged and having access to resources that would facilitate their research pursuits.

Furthermore, the students highlighted the essential role of mentorship from educators well-versed in research methodologies, who could provide guidance throughout the research process. They valued teachers who nurtured their curiosity, offered constructive feedback on their work, and instilled confidence in their capabilities. Collaborating with peers sharing similar interests was also noted as beneficial, as it provided diverse perspectives on research topics.

In addition, students voiced a desire for more exposure to real-world applications of research and opportunities to present their findings to a broader audience. They believed that showcasing their work not only boosted their self-assurance but also inspired others to engage in research endeavors.

Overall, the student interviews emphasized the importance of establishing a supportive environment that fuels a passion for research and empowers gifted students to unleash their full potential. See reference (Client, 2013)[16].

Self-perceived aspects of identity	Examples from data
Beliefs	"A belief that I will maybe I'll be able to make a difference in the world, not for myself but for other people." (Individual Interview 2 [10/11], 18/9/15)
Strengths	"I suppose I've always been really creative and imaginative, which goes into being an author." (Individual Interview 1 [8/9], 14/514)
Challenges	"Definitely . . . nothing to do with [the] teaching profession . . . I'm not too good with, . . . teaching new things." (Individual Interview 1 [10/11], 30/6/14).
Family backgrounds	"My mum was a teacher . . . she works as a . . . Student Support Officer. So, I guess, she's fairly significant in my life [and decisions to become a teacher] being my mum and all." (Individual Interview 1 [10/11], 20/6/14).
Potential	"I think that if I put, set my mind to it I can do . . . nearly anything that I want to." (Individual Interview 1 [10/11], 20/6/14)

Table 6: Identity Influences Career Development. (source: reference (Rebecca D. Napier, 2023)[1])

7. Evaluation Strategies for Educational Activities

7.1. Current evaluation methods used at the school

The evaluation techniques implemented at Malaysian Friendship Girls Secondary School entail a thorough examination of diverse data sources to gauge student achievements, guide professional growth initiatives, and track progress towards educational objectives. Through detailed scrutiny of disaggregated student data, the school identifies areas for improvement in learning outcomes and proficiency standards, informing the design of professional development programs. This process involves analyzing results from standardized assessments at national, state, and local levels, as well as student work samples and behavioral indicators such as attendance and disciplinary records. By delving into data at individual student, classroom, and school-wide levels, specific educational needs are pinpointed to prioritize teacher training.

Furthermore, the school assesses its advancement in meeting set objectives through student learning and performance evaluations. Esteemed educational institutions like Malaysian Friendship Girls Secondary School conduct annual reviews of their curriculum, teaching quality, and student achievements in alignment with their mission and goals. This continuous enhancement approach fosters a culture of collective accountability towards enhancing student academic outcomes among faculty and staff.

Moreover, schools are mandated to conduct self-assessments using quality educational standards to evaluate leadership efficacy, organizational management procedures, teaching methodologies, and student accomplishments. The school consistently rates itself positively in these aspects annually through a comprehensive evaluation process that takes into account academic successes alongside extracurricular involvement.

By integrating these assessment methodologies into its educational framework, Malaysian Friendship Girls Secondary School showcases a dedication to data-driven decision-making for enhancing teaching methodologies and student performance. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 41-45)[7], (Malaysia, 2013, pages 86-90)[9], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 26-30)[7].

Question detail	Australian born	N	Not born in Australia	N	All
I am satisfied with the	48.7%	263	44.2%	249	46.4%

Question detail	Australian born	N	Not born in Australia	N	All
attitude to people of my ethnicity					
Overall, I find my work rewarding	78.0%	287	76.4%	271	77.2%
I am satisfied with the culture of my workplace	53.0%	287	49.3%	270	51.0%
I have been impacted by harassment based on power position	32.7%	263	34.4%	249	33.5%
I have been impacted by lack of support from institutional supervisors	63.5%	263	55.6%	247	59.8%
I have been impacted by questionable research practices of colleagues within my institution	36.1%	263	39.7%	247	37.1%
I am satisfied with the leadership and management	48.8%	287	45.9%	270	47.1%

Question detail	Australian born	N	Not born in Australia	N	All
of my workplace					
My job is a source of considerable personal strain	56.2%	242	45.9%	220	51.6%
How would you rate your overall satisfaction with your current job (satisfied or very satisfied)	65.2%	242	59.5%	220	62.3%

Table 7: (source: reference (Doran et al., 2021)[18])

(A)						
Workplace characteristic	Female (n = 345)		Male (n = 166)			
Impacted	Strongly impacted	Total impacted		Impacted	Strongly impacted	Total
Lack of support from instituti	45.5%	18.3%	63.8%		34.3%	18.1%	52.4%

(A)							
onal superiors							
Inequitable hiring practices	27.8%	12.2%	40.0%		19.8%	15.6%	35.4%
Harassment based on power position	25.4%	11.6%	37.1%		14.5%	11.4%	25.9%
Questionable research practices of colleagues within their institution	34.2%	7.2%	41.4%		18.7%	12.0%	30.7%
Questionable research practices outside their institution	27.2%	6.4%	33.6%		21.7%	7.2%	28.9%
Feeling	4.3%	6.7%	11.0%		7.0%	8.6%	15.6%

(A)									
unsafe in the work environment									
(B)									
Workplace characteristic	Research only (n = 282)		Research and teaching (n = 126)		Clinician researcher (n = 19)				
Impacted	Strongly impacted	Total	Impacted	Strongly impacted	Total	Impacted	Strongly impacted	Total	
Lack of support from institutional superiors	37.4%	17.1%	54.5%	42.1%	22.2%	64.3%	63.2%	15.8%	79.0%
Inequitable hiring practices	23.8%	9.6%	33.4%	26.2%	20.6%	46.8%	42.1%	10.5%	52.6%
Harassment based on power position	20.3%	11.4%	31.7%	27.0%	14.3%	41.3%	15.8%	10.5%	26.3%
Questio	27.0%	10.3%	37.3%	27.8%	6.3%	34.1%	26.3%	10.5%	36.8%

(A)									
nable research practices of colleagues within their institution									
Questionable research practices outside their institution	25.3%	8.5%	33.8%	23.8%	4.0%	27.8%	21.1%	15.8%	36.9%
Feeling unsafe in the work environment	8.4%	4.2%	12.6%	6.7%	7.4%	14.1%	5.0%	5.0%	10.0%

Table 8: (source: reference (Doran et al., 2021)[18])

7.2. Recommendations for enhancing evaluation strategies

Effective evaluation methods to promote a culture of research among gifted students should focus on key areas. Schools must prioritize using data for decision-making throughout the institution, as recommended by the What Works Clearinghouse (WWC). Continuous self-assessment, examining student data, and guiding professional development are crucial for targeted support. Utilizing individual performance data helps identify areas for improvement and intervention strategies. Involving teacher leaders in planning sessions can enhance collaborative efforts towards boosting

student achievement. Following these best practices from sources like WWC guides and self-assessment tools will help schools improve their evaluation methods and encourage research activities among gifted students. See references: (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 31-35)[7], (Figgett, 2019, pages 46-50)[10], (Quality Standards Meeting the Definition of a High Performing Charter School, 2013, pages 26-30)[7].

8. Community Engagement to Support Educational Initiatives

8.1. Current community involvement in school programs

In the context of educational initiatives at the Malaysian Friendship Girls Secondary School, community engagement plays a vital role. The school places great importance on collaborating with local experts, including scientists, historians, communication specialists, writers, architects, and businesses, to assess student work and offer valuable feedback. These partnerships not only deepen students' comprehension of standards and expectations across various fields but also promote a strong sense of community involvement within the school district. Additionally, the school facilitates connections between students and suitable mentors at every grade level to cater to their unique interests and talents.

Moreover, involving community groups focused on specific subjects in collaborations with classes, schools, or programs provides an expert perspective that complements classroom instruction. Through this interaction with the community, students gain insights into practical applications of their learning and are encouraged to explore diverse viewpoints and career pathways. Furthermore, by providing support resources for parents through organizations like the National Association for Gifted Children (NAGC), the school ensures that families are well-equipped to effectively support their gifted children.

In summary, the current community engagement at Malaysian Friendship Girls Secondary School underscores the importance of cooperation, mentorship opportunities, and access to resources that enhance students' educational journeys. By strengthening these partnerships and expanding initiatives for community involvement, the school can further cultivate a culture of research among its gifted students. See references: (Malaysia, 2013, pages 211-215)[9], (Figgett, 2019, pages 41-45)[10].

8.2. Suggestions for increasing community support

To garner increased backing from the community for educational endeavors at the Malaysian Friendship Girls Secondary School, it is imperative to implement a range of strategies. Firstly,

establishing a comprehensive district advisory committee for gifted education, comprising educators, parents, and community members, is crucial. This committee should convene regularly to evaluate and deliberate on effective ways to bolster the program. By engaging diverse stakeholders, including experts in various fields, the committee can furnish students with valuable feedback and offer suggestions for enhancing the educational journey.

Furthermore, forging partnerships with local scientists, historians, communication specialists, writers, architects, and businesses can enhance the students' learning experiences. These collaborations not only expose students to real-world standards and expectations but also foster a sense of community collaboration within the school district. Additionally, community groups specializing in particular subjects could partner with the school to provide expert perspectives and enrich educational initiatives.

Moreover, facilitating connections between students and suitable mentors at all grade levels can address the unique interests and talents of students effectively. This mentorship approach can offer tailored guidance and support to meet individual student needs. Furthermore, involving volunteer organizations in the community can deliver a variety of services and advantages to the school while presenting valuable learning opportunities for students.

By implementing these strategies to boost community support, the Malaysian Friendship Girls Secondary School can establish a more enriching and immersive educational setting for its gifted students. See references: (Malaysia, 2013, pages 206-210)[9], (Figgett, 2019, pages 36-40)[10], (Figgett, 2019, pages 41-45)[10].

9. Ongoing Support for Teachers to Improve Teaching Capabilities

9.1. Professional development opportunities for teachers

Continuous professional growth opportunities are crucial for educators working with gifted students. Training in gifted education helps teachers promote critical thinking, cater to individual needs, and offer stimulating learning experiences. It is essential for teachers to meet certification standards and obtain specialized training to create a conducive learning environment. Understanding the cognitive, social, and emotional characteristics of gifted students is vital for designing tailored curriculum and fostering personal growth. Providing ongoing professional development for all individuals involved in educating gifted students, including school leaders and support staff, is important. Innovative approaches like online modules can accommodate diverse preferences of educators. School districts should offer targeted training on roles and responsibilities within services for gifted students. Investing in continuous professional development opportunities can enhance the educational journey and outcomes for gifted learners. See reference (Figgett, 2019, pages 41-45)[10].

Quote number	Specific response
1	*Because it took me so long to earn my PhD, not using it now would seem like a waste. Also, I don't know what else I am qualified to do.*
2	*I didn't know what the other options were or how to pursue them.*
3	*I enjoy science. I feel like leaving would be a failure. I try to continue/stay alive until that failure happens.*
4	*I've spent 10 years training to be an academic. I want to be an academic, but it seems it just isn't my choice at the end of the day. I'll stay until I am no longer competitive. I am keeping my eyes open and looking at other opportunities but so far no one wants me outside academia either.*
5	*I have no skills in anything else.*
6	*After 13 years at university, a divorce, my body and mind falling apart, and pulling myself up from grinding childhood poverty and abuse there isn't anything else I feel that I am qualified to do. I am really good at my job yet overqualified and not healthy enough to do anything else. I am stuck here.*
7	*I also cannot imagine working in another environment, I actually don't know what other options are available and whether these would be fulfilling.*
8	*I constantly think about leaving academia/research (from necessity not choice) but don't know how and am not qualified for any other jobs.*

Table 9: (source: reference (Doran et al., 2021)[18])

9.2. Strategies for enhancing teachers' educational capabilities

Enhancing teachers' educational capabilities requires a commitment to ongoing professional development and providing necessary support to ensure educators are well-prepared to meet the unique needs of gifted students. One effective strategy is to offer training in diversity, equity, and inclusion, enabling teachers to appreciate and utilize the cultural strengths of all students. This can lead to more personalized and impactful teaching methods that cater to the various learning preferences of gifted individuals.

Moreover, establishing connections between school districts and higher education institutions can help identify and nurture prospective teachers from diverse backgrounds who can bring fresh perspectives to the classroom. Through on-the-job professional development opportunities and extracurricular training sessions, educators can continuously refine their abilities in fostering a culture of inquiry among gifted students.

Additionally, involving school leaders in providing direct support and enhanced services to teachers can play a significant role in cultivating a positive school atmosphere that values continuous learning and collaboration. By aligning the curriculum and instructional practices with the backgrounds, languages, and experiences of marginalized communities, teachers can create inclusive learning environments that encourage critical thinking and creativity in gifted students.

In essence, the key to success lies in investing in high-quality teaching methods through tailored support, ongoing professional development, and fostering a culture of teamwork among educators. By equipping teachers with the necessary resources and tools, schools can effectively cultivate a culture of inquiry among gifted students while enriching the overall educational experience for all learners. See references: (Raudys, 2018)[17], (Figgett, 2019, pages 41-45)[10], (Department, 2019, pages 46-50)[8], (Department, 2019, pages 6-10)[8].

References

- [1] Rebecca D. Napier. Jane M. Jarvis. Julie Clark. R. John Halsey. (2023). Influences on Career Development for Gifted Adolescent Girls in Selective Academic Programs in Australia. https://journals.sagepub.com/doi/10.1177/00169862231201604
- [2] Sally M. Reis. (2015). Reconsidering Regular Curriculum for High Achieving Students, Gifted Underachievers, and Relationship between Gifted and Regular Education. https://gifted.uconn.edu/schoolwide-enrichment-model/reconsidering_regular_curriculum/
- [3] The School Counselor and Equity for All Students. (2024). https://www.schoolcounselor.org/Standards-Positions/Position-Statements/ASCA-Position-Statements/The-School-Counselor-and-Equity-for-All-Students
- [4] NYU Web Communications. (2024). Race Influences Teachers' Referrals to Special and Gifted Education, Finds Steinhardt Study. https://www.nyu.edu/about/news-publications/news/2016/october/race-influences-teachers-referrals-to-special-and-gifted-educati.html
- [5] Basha Krasnoff. (2016). Culturally Responsive Teaching A Guide to Evidence-Based Practices for Teaching All Students Equitably. https://educationnorthwest.org/sites/default/files/resources/culturally-responsive-teaching.pdf
- [6] Reis. S. & McCoach. D.. (2000). The underachievement of gifted students: What do we know and where do we go?. https://www.davidsongifted.org/gifted-blog/the-underachievement-of-gifted-students-what-do-we-know-and-where-do-we-go/
- [7] Quality Standards Meeting the Definition of a High Performing Charter School. (2013). https://www.marylandpublicschools.org/programs/Documents/Charter-Schools/Resources/QualityStandardsCharterSchools2013.pdf
- [8] New York State Education Department. (2019). Culturally Responsive-Sustaining Education Framework. https://www.nysed.gov/sites/default/files/programs/crs/culturally-responsive-sustaining-education-framework.pdf
- [9] Ministry of Education Malaysia. (2013). Malaysia Education Blueprint 2013 - 2025. https://planipolis.iiep.unesco.org/sites/default/files/ressources/malaysia_blueprint.pdf
- [10] Figgett. Katrina. (2019). Resource Guide for the Education of Gifted Students in Florida. https://www.fldoe.org/core/fileparse.php/5660/urlt/RGEGSF.pdf
- [11] Francesca Gottschalk, Crystal Weise. (2023). Digital equity and inclusion in education: An overview of practice and policy in OECD countries. https://one.oecd.org/document/EDU/WKP(2023)14/en/pdf
- [12] Reding. Cheryl. (2020). Building Leadership program standards June 09, 2020. https://www.ksde.org/Portals/0/TLA/Program%20Standards/Building%20Leadership%20Standards%20final%2006-09-2020.pdf?ver=2020-06-15-165643-683
- [13] Kyung Hee Kim. (2011). The Creativity Crisis: The Decrease in Creative Thinking Scores on the Torrance Tests of Creative Thinking. https://www.nesacenter.org/uploaded/conferences/SEC/2013/handouts/Kim_Creativity-Crisis_CRJ2011.pdf
- [14] College of Education Course Descriptions. (2024). https://www.fau.edu/registrar/university-catalog/catalog/educationdes/
- [15] The National Working Group on Advanced Education. (2023). Building a Wider, More Diverse Pipeline of Advanced Learners. https://fordhaminstitute.org/national/research/building-wider-more-diverse-pipeline-advanced-learners

- [16] Valued Gateway Client. (2013). GIFTED STUDENTS: RECOMMENDATIONS FOR TEACHERS. https://www.education.udel.edu/wp-content/uploads/2013/01/GiftedStudents.pdf
- [17] Justin Raudys. (2018). 11 Real Ways to Build a Positive School Culture. https://www.prodigygame.com/main-en/blog/school-culture/
- [18] Michael R Doran, Katherine Christian, Wendy Wright, Carolyn Johnstone, Jo-ann Larkins. (2021). Research Culture: A survey of early-career researchers in Australia. https://elifesciences.org/articles/60613
- [19] School Integration. (2023). https://www.aft.org/ae/fall2019/kahlenberg_potter_quick