

**MEDIATION-MODERATION EFFECTS OF
SOURCES OF CAREER SELF-EFFICACY AND
SERVICE QUALITY OF UNIVERSITY ON THE
RELATIONSHIP BETWEEN AUTISTIC TRAIT
AND CAREER SELF-EFFICACY AMONG
MALAYSIAN UNDERGRADUATES**

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UNIVERSITI SAINS MALAYSIA

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by

MOHD SYAZWAN BIN ZAINAL

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LIST OF SYMBOLS

β	Path Coefficient
f^2	Effect Size
Q^2	Predictive Relevance
R^2	Predictive Accuracy Test
SD	Standard Deviation

LIST OF ABBREVIATIONS

ASD	Autism Spectrum Disorder
AVE	Average Variance Extracted
CA	Cronbach's Alpha
CR	Composite Reliability
HCMs	Hierarchical Component Models
HFASD	High Functioning Autism Spectrum Disorder
HOC	Higher Order Component
HTMT	Heterotrait-Monotrait
LOC	Lower Order Component
MCO	Movement Control Order
MVA	Missing Value Analysis
PLS-SEM	Partial Least Square-Structural Equation Modelling
SCT	Social Cognitive Theory
SCCT	Social Cognitive Career Theory
VIF	Variance Inflation Factor

LIST OF APPENDICES

Appendix A	Questionnaire
Appendix B	Letter of Expert Appointment
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**KESAN MEDIASI-MODERASI SUMBER EFIKASI KENDIRI
KERJAYA DAN KUALITI PERKHIDMATAN UNIVERSITI TERHADAP
HUBUNGAN ANTARA TRET AUTISME DAN EFIKASI KENDIRI
KERJAYA DALAM KALANGAN MAHASISWA DI MALAYSIA.**

ABSTRAK

Tret autisme merujuk kepada ciri khusus yang dikaitkan dengan individu dengan spektrum autisme dan juga dalam populasi umum. Menilai tret autisme dalam populasi umum adalah penting kerana ia dapat menjelaskan perbezaan antara individu autistik dan bukan autistik. Selain itu, memahami taburan tret autisme dalam persekitaran dan tetapan yang berbeza boleh membantu membangunkan strategi yang disasarkan untuk menyokong individu yang mempunyai keperluan khusus mengikut tahap dan peringkat. Kajian ini bertujuan untuk menyiasat bagaimana tret autisme memberi kesan kepada efikasi sendiri kerjaya dalam kalangan pelajar sarjana muda di sebuah universiti tempatan di Malaysia. Selain itu, kajian ini meneroka sama ada sumber efikasi sendiri kerjaya dan kualiti perkhidmatan universiti memainkan peranan dalam membentuk kesediaan kerjaya dalam kalangan pelajar. Kajian itu menggunakan empat instrumen, iaitu *Autism-Spectrum Quotient Short (AQ-Short)*, *Career Exploration and Decision-Making Learning Experiences Scale*, *Higher Education PERFORMANCE-only (HEdPERF)*, dan *Career Decision Self-Efficacy-Short Form (CDSE-SF)* untuk mengumpul data daripada 1344 pelajar bidang sains dan sains sosial dari sebuah universiti awam di Malaysia. Pelajar berkenaan telah dipelawa untuk mengambil bahagian dalam kajian tinjauan secara atas talian, melalui teknik persampelan berstrata. Penyelidikan ini melibatkan analisis deskriptif dan inferensi, mendedahkan hubungan yang signifikan antara tret autisme, sumber efikasi sendiri

kerjaya dan efikasi sendiri kerjaya untuk kumpulan pelajar tret autism yang tinggi dan rendah. Selain itu, kualiti perkhidmatan universiti dilihat berperanan sebagai moderator bagi hubungan antara tret autisme dan sumber efikasi sendiri kerjaya untuk kumpulan tret autisme tinggi, yang membuktikan bahawa terdapat keperluan untuk program sokongan dan intervensi yang bersesuaian terutamanya untuk pelajar tret autism tinggi. Kajian ini menyerlahkan kepentingan untuk memahami terhadap kepelbagaian individu dalam kalangan mahasiswa, di samping menekankan tanggungjawab universiti untuk memenuhi keperluan pelajar yang pelbagai. Memahami keperluan yang pelbagai ini harus menjadi komitmen kepada universiti dalam meningkatkan kualiti perkhidmatan.

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EFFICACY AMONG MALAYSIAN UNDERGRADUATES**

ABSTRACT

Autistic traits refer to specific characteristics associated with individuals on the autism spectrum and also in the general population. Examining autistic traits in the general population is crucial as it can shed light on the differences between autistic and non-autistic individuals. Moreover, understanding the distribution of autistic traits within different environments and settings can help develop targeted strategies to support individuals with specific needs related to levels of these traits. The present study aims to investigate how autistic traits impact career self-efficacy among undergraduate students in a local university in Malaysia. Additionally, the study explores whether sources of career self-efficacy and the university's service quality play a role in shaping career preparation among students. The study employed four instruments, namely Autism-Spectrum Quotient Short (AQ-Short), Career Exploration and Decision-Making Learning Experiences Scale, Higher Education PERFormance-only (HEdPERF), and Career Decision Self-Efficacy-Short Form (CDSE-SF) to collect the data from 1344 science and social science undergraduate students in a public university in Malaysia. The undergraduate students were invited to participate in the online survey, via a stratified sampling technique. The research entailed descriptive and inferential analyses, uncovering a significant relationship between autistic traits, sources of career self-efficacy and career self-efficacy for both high and low autistic traits groups. Notably, the service quality of university moderated the

relationship between autistic traits and sources of career self-efficacy for the high autistic traits group, underscoring the need for tailored support and intervention programs, particularly for high autistic traits students. This study highlights the importance of acknowledging neurodiversity among undergraduates and emphasizing the university's responsibility to cater to diverse needs. Addressing these unique needs should be central to the university's commitment to service quality.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Studies on autism among children in Malaysia have seen an increase in recent years (Low et al., 2021). Moreover, experts worldwide are increasingly focusing on the issues and concerns affecting young adults on the autism spectrum (Chee & de Vries, 2021; Hedley et al., 2021). To this extent, Shattuck et al. (2012) discovered that young adults on the autism spectrum exhibit higher functional abilities and are more likely to be enrolled in higher education. Additionally, factors such as higher employment rates and the pursue of higher incomes contribute to their tendency to pursue university education (Whittenburg et al., 2019). Furthermore, family support is another significant factor that influences their decision to attend university (Alverson et al., 2019).

Recent years, studies evaluating autistic traits within specific populations are gaining global attention (Johnston et al., 2019; Pelton et al., 2020). Autistic traits refer to personality and cognitive traits that resemble, but are milder than those observed in individuals formally diagnosed with autism (Hyseni et al., 2019; Landry & Chouinard, 2016). Researchers investigating autistic traits have suggested that neuropsychological performance spans the entire range of autistic traits within the general population (Hyseni et al., 2019). These traits can be categorized into five domains: social skills, routines, flexibility, imagination, and a fascination with numbers or patterns (Hoekstra et al., 2011; Johnston et al., 2019; Pelton et al., 2020).

Exploring autistic traits within the general population is crucial, as it offers valuable insights into both autistic and non-autistic groups. Studying these traits across

a broad spectrum allows for a deeper understanding of how individuals navigate everyday social situations and environments, making it easier to identify patterns that may not be evident in more narrowly defined groups (Jackson & Dritschel, 2016). This approach also enables researchers to work with larger, more diverse samples, facilitating complex statistical analyses that yield more robust findings. In university settings, the presence of high or low autistic traits among students presents unique challenges. Students with high autistic traits often process information differently, which can significantly affect their ability to adapt to social situations and environments. These neurological differences can lead to struggles with academic performance, social participation, and overall engagement in university life (Vincent, 2020).

For instance, students with high autistic traits may experience issues such as perfectionism, procrastination, difficulty in identifying strengths and weaknesses, and reliance on parental decision-making (Anderson et al., 2020; White et al., 2023). On the other hand, students with lower autistic traits might not face the same intensity of these challenges but may still encounter difficulties that require attention and support (Johnson et al., 2023). Universities, therefore, play a pivotal role in addressing the diverse needs of students across this spectrum. By providing tailored support and creating an inclusive environment, universities can help all students, regardless of their trait levels, not only to succeed academically but also to prepare effectively for their future careers (Smith & Doe, 2023). This dual focus on academic and career preparation underscores the critical importance of universities as institutions that support the holistic development of their students.

Career self-efficacy, as defined by Mahmud et al. (2019), is the unwavering confidence individuals have in their capacity to navigate their career journey, encompassing self-awareness, access to career information, goal setting, strategic planning, and effective problem-solving. Research, exemplified by Chan (2020), underscores the pivotal role of assessing one's career self-efficacy as it profoundly influences the trajectory of one's career. Mahmud et al.'s findings in 2022 further highlight the promising outcomes of intervention programs aimed at enhancing students' career self-efficacy. Career self-efficacy emerges as a paramount factor in molding an individual's career progression, decision-making process, and ultimate triumph. This assertion is supported by the research of Westbrook et al. (2013), which reveals that issues related to self-efficacy and career preparation are prevalent not only among university students but also among those facing various levels of disabilities.

In the realm of building career self-efficacy, environmental factors significantly influence individuals with disabilities in making informed career decisions (Al-Hendawi et al., 2022). Universities play a crucial role in this process by offering tailored accommodations and support services that empower these students to excel academically and professionally (Vincent, 2020). By providing internship and work placement opportunities, universities create a supportive environment where students on the autism spectrum or those with high autistic traits can gain invaluable real-world experience and develop essential job skills. This not only equips them with essential skills for their future careers but also demonstrates the university's commitment to inclusivity and student success. The provision of high-quality services and personalized support is essential for universities to fulfil their role in preparing all students, particularly those with unique needs, for successful careers. Research shows that such proactive measures can significantly improve career outcomes for

neurodiverse students, reinforcing the vital role that universities play in their journey from education to employment (Smith et al., 2023).

Moreover, the learning experience itself is crucial in preparing individuals for their careers. Real-life experiences, motivation, choice, and flexibility have been identified as key facilitators in this process (Hatfield et al., 2018). This concept is also known as the sources of career self-efficacy, which include vicarious experiences and verbal persuasion (Ireland & Lent, 2018). These factors can positively impact an individual's career self-efficacy. Therefore, beyond personal experience and emotional arousal, it is important to acknowledge that the sources of career self-efficacy are dynamic constructs that can evolve over time through various experiences and interactions. A thorough understanding of these sources empowers individuals to develop and maintain a strong belief in their abilities, ultimately leading to improved career self-efficacy.

Building on this concept, understanding how autistic traits are distributed within specific environments, such as a university, is essential for developing effective strategies to support individuals with varying needs associated with different levels of autistic traits. Current research presents a rather grim outlook on employment opportunities for university graduates on the autism spectrum (Dean et al., 2022; Nagib & Wilton, 2020). Therefore, the aim of this study was to examine the role of personal factors (autistic traits as an independent variable) in influencing career self-efficacy (dependent variable), while also considering the impact of learning experiences (sources of career self-efficacy as a mediator) and environmental influences (service quality of the university as a moderator variable) among undergraduate students with both high and low levels of autistic traits.

1.2 Research Background

The United Nations and World Health Organizations describe youth as individuals between the ages of 15 and 24 (United Nations, 2020; WHO, 2020). Arnett (2016) stated that the early phase of adulthood is usually defined as between the ages of 18 to 29 years, a stage of life when young adults are transitioning from their education to career and employment. From the locale perspective, *Rang Undang-Undang (RUU) Pertubuhan Belia dan Pembangunan Belia (Pindaan) 2019* stated that youth's age in Malaysia is between the ages of 15 to 30 years where previously it was between the ages of 15 to 40 years.

However, while going through this youth phase, various challenges and issues are encountered by the youth, particularly during the transition from education to career and employment. The rate of employment among university graduates is also still unsatisfactory based on statistics provided by the Malaysian Ministry of Higher Education (KPT, 2021). Therefore, various government efforts had been put in place to support the youth during the education-to-work transitional phase. For example, the *Kementerian Pengajian Tinggi - Career Advancement Program (KPT-CAP)* was introduced to offer soft-skills training to the graduates to optimise their readiness for employment.

Career self-efficacy is one important component of employment, related to the building of self-confidence and individual goals in employment (Pearlman-Avnion & Aloni, 2016). Additionally, career self-efficacy has a significant impact on the process of forming career choices, as evidenced by the research of Komarraju et al. (2014) and Sidiropoulou-Dimakakou et al. (2012). Individuals characterized by a diminished sense of career self-efficacy are at a heightened risk of cultivating unproductive career

perspectives. The Social Cognitive Career Theory, initially proposed by Lent et al. in 1994, provides a comprehensive framework for delving deeper into this aspect. This theory amalgamates elements such as self-assurance, anticipated outcomes, self-objectives, and educational aspects to elucidate an individual's readiness for their career path, as elucidated in the work of Brown and Lent (1996).

Individuals with high autistic traits may have a poor sense of self-efficacy that affects their ability to integrate into the career (Lowinger & Pearlman-Avni, 2019) which consequently causes anxiety and self-uncertainty. The relationship between autistic traits (person factor) and career self-efficacy is an important aspect to consider when supporting people on the autism spectrum in their career development. By understanding this aspect, appropriate support can be provided. At the same time, it is necessary to also understand other factors that may influence individual career self-efficacy, such as environment factors and learning experience (Brown & Lent, 2013).

Social Cognitive Career Theory (Lent et al., 1994) suggests that self-efficacy, or one's belief in their ability to accomplish tasks and achieve goals in their career, is shaped by a complex interplay of learning experiences, personal attributes, and environmental factors (Lent et al., 1994). Lent et al. (2017) highlights four primary sources which individuals derive their self-efficacy beliefs: personal experiences, observing others' experiences (vicarious experiences), receiving verbal encouragement and feedback (verbal persuasion), and experiencing emotional reactions in specific situations (emotional arousal). These sources collectively mold an individual's self-efficacy, influencing the decisions they make and the actions they take in their career pursuits. It has been demonstrated that self-efficacy can be intentionally modified by

manipulating the information and experiences related to one's effectiveness in various tasks, as well as through task performance (Malinauskas & Brusokas, 2010).

Moreover, the environment plays a crucial role in shaping an individual's career self-efficacy, particularly in the context of higher education. Universities are significant players in facilitating career development. For instance, evidence supports that interactions with faculty advisor could enhance students' knowledge about potential career opportunities post-graduation (Chaturvedi & Guerrero, 2022). Hence, universities have a substantial role in preparing graduates for the workforce. However, it is important to acknowledge that attending a university can pose unique challenges, especially for individuals with high autistic traits (Jansen et al., 2017). These challenges may range from the logistics of commuting to and from campus independently to coping with the often-overwhelming environment of a lecture hall, which can be markedly different from the more structured and predictable settings of a school classroom at the primary and secondary school levels (Cai & Richdale, 2016).

SCCT posits that an individual's belief in their ability to accomplish career-related tasks, known as self-efficacy, is shaped by a dynamic interplay of learning experiences, personal attributes, and environmental factors (Lent et al., 1994). Specifically, SCCT identifies four primary sources from which individuals derive their self-efficacy beliefs: personal experiences, observing others' experiences (vicarious learning), receiving verbal encouragement and feedback (verbal persuasion), and experiencing emotional reactions in specific situations (emotional arousal) (Lent et al., 2017). These sources collectively influence the career decisions and actions of undergraduate students as they navigate their professional development.

The university environment is pivotal in shaping and enhancing the career self-efficacy of undergraduate students. By offering tailored support services and fostering inclusive learning spaces, universities create an ecosystem where students can thrive both academically and professionally. Tailored support, such as personalized career counseling, not only helps students navigate the complexities of career planning but also builds their confidence in making informed decisions about their futures (Smith & Doe, 2023). Moreover, mentorship programs and peer interactions play a crucial role in facilitating vicarious learning, where students observe and learn from the experiences of others. This exposure to diverse career paths and professional journeys can significantly bolster students' self-efficacy, enabling them to envision and pursue their own career goals more effectively. Engagement with faculty advisors, in particular, has been shown to expand students' awareness of potential career opportunities, reinforcing their belief in their ability to succeed in the workforce (Chaturvedi & Guerrero, 2022).

As students prepare to transition from the academic setting to the professional world, the support provided by universities becomes increasingly important. Studies indicate that students who receive comprehensive guidance and mentorship are better equipped to navigate this transition, as they have a clearer understanding of their career options and a stronger sense of self-efficacy (Lee et al., 2023). This preparation is especially critical for undergraduates, as it lays the foundation for their long-term career success and personal development. By committing to these support structures, universities not only enhance the career self-efficacy of their students but also ensure that they are well-prepared to enter the workforce with confidence and competence. This holistic approach to student development underscores the essential role of universities in shaping the future of their graduates.

However, undergraduate students with high autistic traits often face unique challenges in this developmental process. These students may process information differently, leading to difficulties in adapting to social environments and academic demands within the university context (Jansen et al., 2017). Common challenges include managing perfectionism, overcoming procrastination, identifying personal strengths and weaknesses, and reducing reliance on parental guidance in decision-making (Anderson et al., 2020). The often overwhelming nature of university settings—such as navigating large lecture halls and complex social dynamics—can further exacerbate these difficulties compared to the more structured environments experienced during primary and secondary education (Cai & Richdale, 2016).

Addressing these challenges requires universities to implement comprehensive support systems that acknowledge and cater to the diverse needs of students across the autistic spectrum. Unfortunately, awareness and understanding of these specific educational requirements remain limited within many higher education institutions. A study by Khairuddin et al. (2020) in Malaysia revealed that lecturers often lack the necessary knowledge and resources to effectively support students with high autistic traits, leading to inadequate educational experiences and outcomes. This gap is further highlighted by the disproportionately low enrollment and graduation rates of students with disabilities in Malaysian public universities, where only 0.35% of the student population comprised individuals with disabilities as of 2019, significantly lower than the global prevalence estimates reported by the World Health Organization.

The consequences of insufficient support during university years are evident in the employment outcomes of graduates on the autism spectrum. Research indicates that merely 6% of these individuals secure competitive employment post-graduation,

underscoring the profound challenges they face during the transition to the workforce (Shattuck et al., 2012). Additional studies highlight the complexity of future planning and career development for these graduates, who often struggle to find and maintain suitable employment opportunities (Kirby et al., 2016). These statistics emphasize the urgent need for ongoing research to identify effective strategies and interventions that can facilitate smoother transitions and better career outcomes for undergraduate students with high autistic traits.

Furthermore, personal attributes such as gender and disability status also intersect with career self-efficacy. For example, Yoo and Kim (2012) found that male students in Korea tend to exhibit higher levels of career self-efficacy compared to female students, suggesting that societal and cultural factors play a role in shaping these beliefs. Despite the recognition of various personal factors within SCCT, there remains a relative paucity of research specifically examining how autistic traits influence career self-efficacy among undergraduates. Addressing this research gap is essential for developing targeted interventions that support the unique needs of these students.

In conclusion, enhancing the career self-efficacy of undergraduate students, necessitates a multifaceted approach that integrates supportive learning experiences, acknowledgment of personal attributes, and nurturing environmental factors within university settings. By committing to inclusivity and tailored support, universities can empower all students to achieve their academic and professional aspirations, ultimately contributing to more equitable and successful career outcomes across diverse populations.

1.3 Problem Statement

The variation in prevalence rates between children and adults on the autism spectrum can be attributed to historical underdiagnosis. As diagnostic practices and awareness have progressed, it is plausible that a significant number of adults with autism were undiagnosed during their childhood (Rosen et al., 2018). This delay in diagnosis and suspicion of autism can be attributed to several factors, including limited prior knowledge of autism (Robison, 2019), inadequate awareness training for healthcare professionals to accurately identify autism (Au-Yeung et al., 2019), and even deliberate omission of autism diagnoses from medical records (Robison, 2019). Additionally, the reluctance to disclose autism may stem from fears of discrimination and stigma (Thompson-Hodgetts et al., 2020). In the Malaysian context, the lower prevalence of autism compared to global estimates may be due to autism being categorized within the learning disabilities group alongside other cognitive and developmental disabilities (Neik et al., 2014).

Nevertheless, there is growing recognition that autistic traits are not limited to diagnosed individuals on the autism spectrum. Recent research (Fusar-Poli et al., 2020; Graf et al., 2017; Low et al., 2023) acknowledges that these traits can also exist within the general population. The challenges associated with autistic traits highlight the necessity to expand the support services available to university students with high autistic traits, catering to their neuropsychological needs and overall well-being (Lei et al., 2020). Therefore, it is crucial to investigate the experiences and issues faced by students with high autistic traits, particularly in terms of career preparation.

However, there is a significant gap in research concerning the challenges encountered by students with both high and low autistic traits in Malaysia. Studies

suggest that higher education can present practical and psychological challenges for students, particularly those with high autistic traits, leading to feelings of anxiety and loss (Vincent, 2019). However, it is important to recognize that students with lower autistic traits also face unique challenges that can affect their academic and social experiences. Cultural differences further complicate these dynamics, necessitating an understanding of how varying levels of autistic traits impact individual lives. Students on the autism spectrum, whether they exhibit high or low traits, often face substantial disparities compared to other disability groups, underscoring the need for a comprehensive exploration of their experiences in higher education.

Universities play a pivotal role in providing crucial support to students, which is essential for enhancing employability and fostering career development (Pitan & Muller, 2020). Extensive research demonstrates that students who actively seek or receive adequate support can significantly boost their employability, enhance their human capital, and take charge of their career trajectories, as shown by Donald et al. (2017). Additionally, students who dedicate time to skill mastery and effectively manage the demands of higher education, driven by a strong desire to succeed, tend to report higher levels of career self-efficacy (Bowden et al., 2019). However, a critical issue arises in understanding how career self-efficacy differs among students with varying levels of autistic traits, including both high and low traits. While the challenges faced by students with high autistic traits have been recognized, there is a significant gap in addressing how students with lower autistic traits navigate these challenges. Recent research highlights the importance of tailoring support to the specific needs of students across the autism spectrum to maximize their career potential (García-Villamizar et al., 2023).

This variation in self-efficacy across different domains and levels of autistic traits demands meticulous attention, as it has profound implications for career preparation and success. The lack of research in this area presents a significant barrier to developing effective support strategies that cater to the diverse needs of students on the autism spectrum. Addressing this issue is essential to ensuring that all students, regardless of the extent of their autistic traits, are equipped with the tools and confidence needed to build successful careers. Low self-efficacy can hinder successful employment outcomes, whereas individuals with high career self-efficacy tend to navigate career choices with ease and effectively handle career-related tasks (Mahmud et al., 2020).

The importance of students making appropriate career choices, assuming accountability for their decisions, and participating in diverse training programs and activities to equip themselves for the job market cannot be overstated, as supported by the findings of Andrews et al. (2014) and Sidiropoulou-Dimakakou et al. (2012). Nevertheless, prior research has pointed out that young individuals on the autism spectrum frequently demonstrate diminished self-confidence, as evidenced in the studies conducted by Chen et al. (2015) and Flower et al. (2019). Yet, there is a significant research gap when it comes to exploring the relationship between career self-efficacy and autism-related studies.

When examining aspects of career self-efficacy, it is essential to assess the sources that contribute to it. Research has shown that sources of career self-efficacy play a pivotal role in career development (Ireland & Lent, 2018; Lent et al., 2017). These sources encompass past achievements, encouragement from others, role models, and positive feedback. They are critical as they bolster confidence, motivation, and

belief in one's ability to succeed in a chosen career path. An unexplored question is whether these sources differ for individuals with high and low autistic traits, considering that the role of these sources in shaping career self-efficacy has been demonstrated for neurotypical students as well (Edomwonyi et al., 2018). This underscores that sources of career self-efficacy both reflect and influence decision-making skills and are conducive to effective career decision-making, alongside self-efficacy.

All these points underscore the vital role that universities play in assisting students, with university support being a significant factor. Numerous studies emphasize the importance of universities providing high-quality services (Vincent & Fabri, 2020). However, there is limited research in Malaysia specifically focused on services and support for students, particularly those with autism, in their career preparation. Social Cognitive Career Theory (Lent et al., 1994) posits that personal factors, career self-efficacy, learning experiences, and environmental factors are interconnected (Lent et al., 1994). The investigation of each aspect cannot be done in isolation. To generate comprehensive findings, these variables require a thorough examination of their respective relationships.

In the past, research has demonstrated that individual factors significantly influence career self-efficacy (Mahmud et al., 2020). Additionally, various sources of career self-efficacy have been shown to enhance career confidence and preparedness. Universities have played a crucial role in supporting students on the autism spectrum, offering tailored resources and environments conducive to their unique needs (Vincent, 2022). However, much of the empirical evidence supporting these findings originates

from studies conducted in Europe (McLeod et al., 2022; Lei & Russel, 2021), and these studies often overlook the specific impact of autistic traits on career self-efficacy.

This research aims to explore the intricate relationship between autistic traits and career self-efficacy among undergraduates. With autistic traits as the independent variable and career self-efficacy as the dependent variable, the study examines whether sources of career self-efficacy—such as mastery experiences, vicarious learning, social persuasion, and emotional states—along with the quality of university services, act as mediating and moderating factors in this relationship. By doing so, it seeks to uncover how these elements contribute to the development of career self-efficacy among students with varying levels of autistic traits, from high to low. A critical aspect of this research is to investigate how universities can better support students across the autism spectrum, not only those with high autistic traits but also those with lower levels. This support might involve providing targeted psychosocial resources, fostering inclusive environments, and enhancing the overall university experience to meet diverse needs. Recent studies underscore the importance of tailored approaches in supporting autistic students, as their needs can vary significantly depending on the severity of their traits (García-Villamizar et al., 2023; Roberts & Webster, 2022).

Current research on job preparation and career advancement for individuals with autism, particularly young adults transitioning into the workforce, is limited. Studies suggest that young adults on the autism spectrum often face heightened anxiety and uncertainty about their future careers, driven by challenges in navigating the job market and workplace environments (Brooke et al., 2018; Wehman et al., 2017). This highlights the need for more effective support systems to address the unique challenges

faced by this population, ensuring that students with both high and low autistic traits are adequately prepared for their careers.

In Malaysia, the focus of autism research has predominantly been on children, leaving a significant gap in understanding the challenges faced by autistic youth as they transition to adulthood, especially during the critical period of career preparation. This study seeks to bridge that gap by examining how autistic traits—ranging from high to low—affect career preparedness and self-efficacy, aiming to inform tailored support and interventions (Low et al., 2021; Low & Lee, 2020). Ultimately, this research strives to uncover nuanced differences in how autistic traits influence career preparation, thereby laying the groundwork for strategies that address the diverse needs of students with varying levels of autistic traits. By identifying gaps in university services and enhancing the effectiveness of career-related programs, the study aims to ensure that all students, regardless of where they fall on the autism spectrum, are well-prepared to enter the workforce. Understanding the spectrum of autistic traits in the context of career preparation is essential not only for individual career success but also for fostering a more inclusive and supportive educational environment.

1.4 Purpose of the Study

This study aims to examine factors that influence career self-efficacy across undergraduate students in a local university in Malaysia.

1.5 Research Objectives

1. To identify the profiles of autistic traits groups among students in a university in Malaysia.

2. To identify the levels of sources of career self-efficacy reported by the students.
3. To identify the levels of service quality of university reported by the students.
4. To identify the levels of career self-efficacy reported by the students.
5. To examine the direct effect of;
 - a. Autistic traits and career self-efficacy for the students with high and low autistic traits group.
 - b. Autistic traits and sources of career self-efficacy for the students with high and low autistic traits group.
 - c. Sources of career self-efficacy and career self-efficacy for the students with high and low autistic traits group.
6. To examine the sources of career self-efficacy as a mediator between autistic traits and career self-efficacy.
7. To examine the service quality of the university as a moderator between autistic traits and career sources of career self-efficacy.
8. To examine the factor that have a significant effect towards career self-efficacy.

1.6 Research Questions

1. What are the profiles of autistic traits among students in a university in Malaysia?
2. What are the levels of sources of career self-efficacy reported by the students?
3. What are the levels of service quality of university reported by the students?
4. What are the levels of career self-efficacy reported by the students?

5. What is the direct effect between the relationship of;
 - a. Autistic traits and career self-efficacy for the students with high and low autistic traits group?
 - b. Autistic traits and sources of career self-efficacy for the students with high and low autistic traits group?
 - c. Sources of career self-efficacy and career self-efficacy for the students with high and low autistic traits group?
6. Do the sources of career self-efficacy as a mediator between autistic traits and career self-efficacy?
7. Do the service quality of university as a moderator between autistic traits and career sources of career self-efficacy?
8. Which factor has a significant effect towards career self-efficacy?

1.7 Research Hypothesis

Alternative hypotheses (H_a) were constructed based on the study highlights related to the variables studied. The hypotheses of the study are as follows:

H_{a1} : There is a significant difference between the high and low autistic traits group for autistic traits, social skills, routine, switching, imagination, and numbers and patterns.

H_{a2} : There is a significant difference between the high and low autistic traits group for sources of career self-efficacy, personal experience, vicarious experience, verbal persuasion, positive emotion, and negative emotion.

H_{a3}: There is a significant difference between the high and low autistic traits group for service quality of university, academic, non-academic, reputation, access, program issue, and understanding.

H_{a4}: There is a significant difference between the high and low autistic traits group for career self-efficacy, self-appraisal, occupational information, goal selection, planning, and problem-solving.

H_{a5}: There is direct effect of for high and low autistic traits group respectively:

- i. Autistic traits is a significant factor for career self-efficacy
- ii. Autistic traits is a significant factor for sources of career self-efficacy
- iii. Sources of career self-efficacy is a significant factor for career self-efficacy

H_{a6}: Sources of career self-efficacy mediate the relationship between autistic traits and career self-efficacy for high and low autistic traits group respectively

H_{a7}: Service quality of the university moderate the relationship between autistic traits and sources of career self-efficacy for high and low autistic traits group respectively.

1.8 Significance of the Study

This study carries substantial theoretical and practical significance, extending prior research that applied SCCT to investigate the interplay between personal factors, the environment, and learning experiences in relation to career self-efficacy among the general population (Jang et al., 2021; Lam & Santos, 2018; Mahmud et al., 2020). However, this study advances the field by specifically assessing how autistic traits, observed across both high and low trait groups, influence career self-efficacy. This

focus not only fills a significant gap in the existing literature but also expands our understanding of how neurodiversity impacts career development, an area that remains underexplored, particularly in non-Western contexts such as Malaysia.

Malaysia currently lacks substantial research examining the prevalence and impact of autistic traits within its population, particularly in the context of career readiness and higher education. Through this study, we aim to assess the influence of these traits on career preparation, thereby underscoring the potential need for additional and tailored support for students as they prepare for their future careers. As discussed in section 1.3, this research contributes to the broader body of knowledge by providing a nuanced understanding of how autistic traits—ranging from high to low—affect university students' career self-efficacy. The insights gained from this study will be instrumental in informing the development of a comprehensive, evidence-based career transition plan for students exhibiting varying autistic traits.

This study also has the potential to significantly influence university policies and practices, particularly within the context of disability support services. The findings will provide valuable data that can guide the planning and implementation of tailored programs and services for students with autism, including those who may be underdiagnosed. This aligns seamlessly with the Ministry of Higher Education's policy, *Dasar Inklusif Orang Kurang Upaya di Institusi Pendidikan Tinggi*, which emphasizes the provision of appropriate support services for students with disabilities. By examining the full spectrum of autistic traits among university students, this study's findings can directly assist the ministry in shaping an informed and effective action plan, thereby enhancing the inclusivity and responsiveness of higher education institutions.

Moreover, the implications of this study extend to university counseling and career services. The findings will offer critical insights for implementing career guidance programs tailored to students' diverse levels of career readiness, taking into account their individual personalities, including their autistic traits. Designing personalized career action plans based on students' specific traits and needs will better prepare them for successful career transitions. Additionally, this study's input will be essential in enhancing the quality of existing university services, particularly those related to career preparation. By designing and implementing appropriate programs, universities can ensure they meet the specific needs of their students, thereby fostering a more inclusive, supportive environment that promotes success and personal growth.

The potential contributions of this study are multi-faceted and hold significant promise for future researchers and practitioners. First, it can provide a novel research model and empirical findings that serve as a valuable foundation for expanding current study designs in methodology, model adaptation, and career intervention programs. Follow-up studies building upon this model could lead to the development of a standardized approach at the national level, characterized by high validity, reliability, and consistent effectiveness. The creation of such a standardized model could represent a groundbreaking milestone, potentially leading to its integration into the standard education-to-career curriculum for higher education in Malaysia. This integration could involve making it a compulsory or elective course in local universities, specifically designed to cater to students with disabilities, including those with varying levels of autistic traits. Such an inclusion would be revolutionary, significantly enhancing the career preparedness and prospects of students within this unique demographic.

Beyond its potential as a standardized curriculum, this study opens up new avenues for researchers interested in exploring similar areas. By examining critical aspects of the educational process that have been previously overlooked, this study sheds light on the psychological and environmental factors that significantly influence career readiness at the university level. This newfound understanding has the potential to transform how career services and counseling are approached, ensuring that students are better equipped to navigate their career paths. In essence, this study has the power to shape the future of research and educational practices, ultimately leading to a more inclusive, supportive, and effective approach to career preparation for students with disabilities and neurodiverse traits.

1.9 Limitation of the Study

This study takes a unique approach in evaluating autistic traits by utilizing a self-reported instrument rather than relying on expensive and specialized medical evaluations. The chosen instrument is well-established, easily accessible, and widely used in various studies, ensuring its suitability for young adult participants who can accurately assess their own personality traits. It is important to note that the study is limited to young adults in a university setting and cannot be generalized to the entire young adult population. Furthermore, certain variables such as gender, year of study, race, and others mentioned in the demographic section are not controlled for in this study's context. The research was specifically conducted at a public university in Malaysia, and the findings should not be generalized to all university student populations nationwide.

Given the focus on four variables - autistic traits, service quality of university, sources of career self-efficacy, and career self-efficacy - the scope of the study is

constrained by the instruments used for data collection. A quantitative survey method was employed, and as such, the empirical findings are limited to the specific research questions addressed in this ongoing study. The reported results are based on the formulated objectives and hypotheses for each variable as a whole concept. It is worth mentioning that data collection occurred during a period of Movement Control Order (MCO) in Malaysia, necessitating an entirely online medium for gathering information as students were not permitted to come to campus. This situation could potentially influence the overall study results, and its impact should be considered while interpreting the findings.

1.10 Operation Definition

This section explains the operational definitions of each key terms in this study. It is vital that some terms are defined to ease the reading of the thesis and give better understanding of the concept and content. Based on the title of this study, the terms given are autistic traits, service quality of university, sources of career self-efficacy, career self-efficacy, and undergraduate students.

1.10.1 Autistic Traits

The characteristics associated with autism, often referred to as sub-threshold autistic traits, are frequently observed within the general population (Baron-Cohen et al., 2001). These traits manifest as subtle deficits in social interaction, communication, and restricted behaviors, interests, and activities. It is worth noting that these traits exist along a continuous spectrum throughout the broader population, implying that individuals can exhibit varying degrees of autistic characteristics, regardless of whether they have received a formal autism diagnosis (Constantino & Todd, 2003).

Nonetheless, these autistic traits characterize individuals within the autism spectrum, particularly those with high levels of autistic traits.

In this study, the researcher has assessed autistic traits using a well-established concept comprising five key constructs, as outlined by the Autism-Spectrum Short (AQ-Short) instrument developed by Hoekstra et al. (2011). These five constructs encompass social skills, routines, switching, imagination, and proficiency with numbers and patterns.

1.10.2 Sources of Career Self-Efficacy.

Extensive research underscores the pivotal role of learning experiences in an individual's career development, an influence that stems from both personal and contextual factors, as extensively outlined by Lent et al. (1994). These learning encounters not only sculpt a person's career path but also serve as substantial wellsprings of self-efficacy, a critical facet in the realm of career advancement. Drawing from Bandura's work (1986), it is established that there are four principal sources that contribute to an individual's self-efficacy: personal experiences, observational learning (vicarious experiences), verbal persuasion, and emotional arousal where delving into the impact of positive and negative emotions on individuals' self-efficacy.

To gauge the influence of these various sources on students' career self-efficacy, this study employed the Career Exploration and Decision-Making Learning Experiences Scale, as developed by Lent et al. (2017). This instrument serves as a valuable lens which can gain profound insights into how these diverse sources collectively shape students' confidence in their ability to make informed career decisions and navigate the intricacies of matters related to their professional