

Basic Psychological Needs, Mindset, and Innovation among B40 Youths: A Conceptual Paper

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ABSTRACT

This conceptual paper discusses psychological needs and mindset towards innovative behaviour among B40 youth in Public Comprehensive Universities through the lens of psychological well-being as a potential mediator. The discussion is grounded in the theoretical framework that autonomy, competence, and relatedness act as basic psychological needs for well-being, creativity and intrinsic motivation. The paper also stresses the cognitive, adaptability, entrepreneurial mindset and boundary-spanning dimensions as other mindset factors that may promote innovative behaviour and psychological well-being. This paper is designed to address the gap in the literature recognising the role of psychological basic needs and mindset on the innovative behaviour of psychologically and socio-economically disadvantaged B40 university students. It further identifies the gap in empirical studies that explore the effects of psychological well-being on the psychological basic needs and innovative behaviour relationships in this specific population. By bringing these variables together, this paper sheds light on the important role of internal psychological resources in creative, adaptive, and innovative behaviour. Overall, the proposed framework suggests that psychological well-being serve as an explanatory pathway through which psychological needs and mindset may influence youth development and future-ready graduate outcomes. Future research, as well as practical applications in education and policy, may benefit from this study's framework for resilience, well-being, and innovation in young people, potentially providing insights and resources for improving these areas in young people.

1. INTRODUCTION

Malaysia has placed increasing emphasis on youth innovation as part of its broader effort to remain competitive in a fast-evolving global environment. The government has introduced initiatives such as the

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Youth Innovation Funds, MADANI Generation Program, and *Pemeriksaan Mahasiswa Madani* Framework, to promote youth innovation (Khazanah Nasional, 2023; Ministry of Higher Education, 2023). These efforts aim to foster behaviours such as innovation, critical and creative thinking, and psychological resilience among the youth of Malaysia. National policies like the Madani Economy Framework also highlight the importance of aligning education, technology, and development with emerging trends in the global economy. These and other policies suggest that youth innovation is both a personal development path and a national priority for economic resilience, sustainability and inclusiveness.

Globally, youth innovation is seen as increasingly important to social change and development at national and international levels, especially when considering the need for young people to adapt to and respond to the many and rapid technological, economic and social changes that they experience. International programs and policy discussions, including through UNDP and UNESCO (UNESCO, 2023; UNDP, 2023), increasingly highlight that fostering youth empowerment, digital literacy and an entrepreneurial mindset equip youth to be development contributors. Such global trends highlight the need for Malaysia to equip young people with new psychological assets, attitudes and creative capacities to face an increasingly competitive future.

This conceptual paper seeks to identify and describe the relationship between innovative behaviour and psychological needs, mindset and psychological well-being among B40 youth at Malaysian Comprehensive Universities. These three psychological needs were selected because they contribute to intrinsic motivation to create, creativity, and psychological willingness to create. Mindset was included because of evidence that beliefs about one's abilities affect learning and flexibility that trigger innovative behaviours (Deci et al., 1985). Finally, psychological well-being as a factor that affects psychological needs and mindset in real behaviours such as critical thinking, coping and sustaining motivation to create (Ryff et al., 1996; Pino et al., 2024). Thus, it is assumed that the psychological well-being is positively related to the innovative behaviour of B40 youth and their future preparedness.

A closer reading of the existing literature reveals three specific and interconnected limitations that this study addresses. First of which is at the theoretical level. Psychological needs (from SDT) and mindset (from implicit theories of intelligence) have mostly been studied in isolation. Psychological well-being has either been treated as a distal outcome or neglected altogether, even though it is the mechanism through which need satisfaction and adaptive mindsets give rise to innovative behaviour (Cypryańska & Nežlek, 2024; Fan et al., 2022). Second, at the empirical level, while Malaysian research on youth innovations has focused on macro-level policy and socio-economic access constraints (DOSM, 2023; Kamalulil et al., 2021) or on samples of general students and graduates, the psychological determinants of innovation among socio-economically disadvantaged undergraduates are under-explored within the literature. Third, at the population level, B40 university students are the only group with a unique combination of sufficiently few resources, sufficient family responsibility, and minimal psychological safety that samples of wealthier university students or out-of-school youth could not be assumed to generalise to them. By integrating psychological needs, mindset and psychological well-being in a single model applied to this specific population, the present study responds directly to each of these gaps. Thus, the study seeks to explore the influence of psychological needs and mindset on the innovative behaviour of B40 youth at Public Comprehensive Universities, with psychological well-being as the mediating factor. In doing so, it highlights the role of these psychological mechanisms in strengthening resilience, fostering creativity, and enhancing the future preparedness of B40 youth.

This shows the increasing importance of this issue. For instance, empirical evidence for the momentum and the gap could only recently be found (Yu et al., 2025): psychological richness was demonstrated to promote innovative behaviour in university students via cognitive flexibility and perceived creative self-efficacy. Resource constraints were only recently theorised as drivers (rather than barriers) of innovation in sustainable product development (Zeschky et al., 2026). Neither line of work examines socio-economically disadvantaged youth, and both are limited by psychological mechanisms that have yet to be tested for B40 youth in Malaysia. Meanwhile, the pressures on B40 youth have intensified: recent Malaysian studies document persisting mental well-being challenges among B40 university students

despite institutional support (Shamsuddin et al., 2024) and highlight social support and coping as critical but unevenly available resources for this group (Aziz et al., 2024). These developments coincide with a period in which Malaysian policy attention to youth well-being and future-ready graduates has grown, including the Thirteenth Malaysia Plan (2026, 2030), which stresses human capital development and transformative education reforms (Ministry of Economy, 2025), the Department of Statistics Malaysia Household Income Survey Report (2025), which highlights income distribution and socio-economic well-being (Department of Statistics Malaysia, 2025), and the latest National Health and Morbidity Survey findings showing alarming rates of adolescent depression and suicidal tendencies among Malaysian youth (Institute for Public Health, Ministry of Health Malaysia, 2026). Together, these developments underscore that while the psychological determinants of innovation are established and B40 students' well-being vulnerabilities are documented, the mediating link between the two remains unexamined making this study both relevant and timely.

The paper is based on one of the main theoretical frameworks used in creativity research, SDT. As identified in SDT theory, individuals with a high level of self-determination, competence, and relatedness have a relatively high intrinsic motivation, psychological well-being, and a high potential for creativity (Ryan & Deci, 2000). For the B40 youth in particular, SDT suggests that when the three basic psychological needs of competence, relatedness, and autonomy were met, individuals were more likely to engage in explorative thinking, encounter difficulties, use effective problem-solving, and think creatively. The overall implications of SDT thus provide a solid theoretical foundation for understanding the psychological factors that contribute to B40 youth's participation in innovation processes.

The paper makes three contributions. First, it proposes a theoretical model, integrating psychological needs theory and mindset theory to explain the innovative behaviour of B40 youth, and the mediating mechanism of psychological well-being. Second, theoretical contributions of this study are that it can improve the understanding of the relationship among psychological needs, mindset, psychological well-being, and innovative behaviour among B40 students of Malaysian Comprehensive Universities. Third, empirical contributions of this study are that it can provide a framework for academics to test the relationship of these variables among this population. The practical contribution of this research is its applicability to policymakers, educators, and institutional leaders.

2. THEORETICAL FOUNDATIONS

2.1. Context and Problem Framing: Malaysian Youth Innovation in the B40 Context

Youth innovation has appeared on the agenda of Malaysia's national development agenda, with the Youth Innovation Funds, MADANI Generation Program, *Pemerkasaan Mahasiswa Madani*, and *Madani Economy Framework* (Ministry of Higher Education, 2023; Khazanah Nasional, 2023) all stressing the importance of creating an innovation-friendly ecosystem and producing critical thinkers, digitally knowledgeable graduates, and future-ready youth. At the national level, youth innovation is seen as a driver of competitiveness, social progress, economic growth and sustainable development because young people are often involved in innovative activities, and in the uptake of technological change (Rami et al., 2024).

B40 youth are still considered a key demographic, as their socio-economic status can limit their access to education, technology, and innovation, and therefore prevent them from developing skills in creativity and problem solving. Such psychological and socio-economic barriers can also adversely affect their intrinsic motivation, creativity, and innovation adoption. Consequently, it becomes more difficult for them to develop a behaviour of innovation.

The report also cites psychological well-being as a factor. Those aged 16 to 29 are much more likely to be depressed (Public Health, 2024). Psychological distress could limit motivation and cognitive capacity which could impact the innovativeness of individuals. Therefore, the relationship of psychological needs, mindset, and psychological well-being with the innovative behaviour of the B40 youth from Public Comprehensive Universities needs to be investigated further as the relationship is still unclear.

Table 1 summarises the policy context, access barriers and socio-economic and psychological impediments, the model proposed in this study is relevant particularly in the Malaysian context, where national youth innovation agendas intersect with the circumstances of B40 students within the backdrop of structural inequalities and under examined psychological factors.

Table 1. Characteristics of Malaysia's Youth Innovation Context and Relevance to the Proposed Model.

Characteristics	Policy Context and Challenges	Relevance to the Proposed Model
Malaysia's youth innovation agenda	Malaysia promotes youth innovation through the Youth Innovation Funds, MADANI Generation Program, Pemerkasaan Mahasiswa Madani, and the Madani Economy Framework.	These policies show that innovation, digital readiness, and future-ready graduates are national priorities.
Importance of youth innovation	Youth innovation is linked to national competitiveness, social progress, and sustainable development, because young people are expected to solve problems and adapt to rapid change.	This supports why youth innovation should be studied in a Malaysian context.
B40 socio-economic barriers	B40 youth face limited access to education, digital resources, and innovation opportunities.	These barriers reduce their chances of developing creative and problem-solving skills.
Psychological and mental health challenges	The study states that psychological and socio-economic challenges weaken self-motivation, creativity, and the ability to generate new ideas, and that youth depression rates are highest among ages 16 to 29.	This explains why psychological well-being should be included in the study.
Research gap	The psychological mechanisms behind B40 youth innovativeness, especially the mediating role of psychological well-being, are still underexplored.	This justifies the study's focus on psychological needs, mindset, and well-being.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1 Basic Psychological Needs and Psychological Well-being

Basic psychological needs are applied as a framework because they are foundational for how youth feel, think, and function in daily life. Autonomy, competence, and relatedness are defined as core psychological needs that support development, motivation, and wellbeing (Deci et al., 1985). Meeting these requirements enhances self-motivation, which is crucial for maintaining good mental well-being (Sakan et al., 2020). Two such experiences are autonomy and competence. Autonomy gives youth a sense of control over their choices, experiences, and their actions.

This mechanism brings about emotional competence, self-direction, and life satisfaction, thus contributing to psychological well-being. Competence is the sense that one has the skills and abilities to accomplish the tasks and responsibilities of daily life. Positive self-evaluative emotions and self-regulatory capabilities such as self-regard, optimism, perseverance, and confidence help youth face academic and social challenges, while relatedness is equally important. Belongingness, social integration, emotional regulation, and perceived social support are related to mental outcomes including anxiety, loneliness, and psychological well-being. B40 youth experience psychological and socio-economic factors that negatively affect their mental well-being. When psychological needs are not met, individuals may experience distress, diminished self-efficacy, and limited creativity and innovation, highlighting the need to support these needs.

Research suggests that when individuals overcome psychological distress, they develop entrepreneurial self-efficacy, which acts as a driver of resilience, allowing them to interpret challenges as learning opportunities rather than terminal setbacks (Hartmann et al., 2022; Shamsuddin et al., 2024). This cognitive shift is essential for B40 youth to transition from a state of "scarcity bandwidth" where mental resources are consumed by immediate survival to a "creative bandwidth" where they can proactively engage in

innovation (Mullainathan & Shafir, 2013). The concept of frugal innovation reframes resource limitations as "structured inputs" or design constraints that catalyse rather than hinder the creative process (Radjou & Prabhu, 2015).

In the context of underserved markets, scarcity acts as a creative driver, forcing innovators to develop solutions that are both high-value and resource-efficient (Zeschky et al., 2026). Studies on Public Comprehensive Universities, students indicate that social belongingness and perceived institutional support are critical moderators of mental well-being, which in turn predicts their capacity for adaptive and innovative behaviour (Aziz et al., 2024; Shamsuddin et al., 2024). Psychological well-being is therefore treated as a key outcome of need satisfaction and an important resource for youth development. When autonomy, competence, and relatedness are supported, young people are more likely to feel mentally healthy, resilient, and able to manage challenges, laying the foundation for positive growth and future innovative behaviour.

H1: There is a positive relationship between autonomy and psychological well-being.

H2: There is a positive relationship between competence and psychological well-being.

H3: There is a positive relationship between relatedness and psychological well-being.

3.2 Mindset and Psychological Well-being

The same applies to mindset: cognitive ability to comprehend and manage multiple perspectives along with detailed details, improves psychological well-being (Ellwood, 2022), adaptability fosters cognitive flexibility, allowing individuals to reframe negative experiences in more constructive ways, which is a key factor in sustaining mental health (Martin et al., 2012). Entrepreneurs adjust their work with their values and passions, finding more purpose and satisfaction (Binder et al., 2012). Boundaries help individuals safeguard their time, energy, and emotional resources, which reduces stress and prevents burnout. This, in turn, boosts psychological well-being (Baumeister et al., 1995). These qualities are expected to improve mental well-being through adaptive coping, lowered stress, increased emotional balance, and increased positive growth.

H4: There is a positive relationship between cognitive and psychological well-being.

H5: There is a positive relationship between adaptability and psychological well-being.

H6: There is a positive relationship between entrepreneurial mindset and psychological well-being.

H7: There is a positive relationship between boundary-spanning and psychological well-being.

This mindset is the bedrock of frugal innovation, where scarcity becomes the mother of invention (Radjou & Prabhu, 2015). Recent evidence from the Malaysian B40 student context confirms that when psychological well-being is prioritised, students are more likely to leverage their limited resources into creative academic and social outputs (Shamsuddin et al., 2024).

3.3 Basic Psychological Needs and Innovative Behaviour

The basic psychological needs of autonomy, competence and relatedness are essential for the development, motivation, well-being, and innovative behaviour. They are necessary for individual health and fulfilment throughout all phases of life (Tian et al., 2018). The thesis argues that B40 youth whose basic psychological needs are not met are less likely to be creative and self-motivated, and have fewer opportunities to develop problem-solving skills.

The importance of autonomy is that having control over the learning context and process from their lecturer eases exploring, analysing, and being proactive, which contributes to innovative behaviour (Benlahcene et al., 2021). The importance of competence is that confidence, skill development, and environmental support allow youth to generate and act on ideas. Relatedness is also an important social need that can positively or negatively influence creativity: Positive relatedness appears to support communication, collaboration, and psychological safety, while negative relatedness negatively influences

work motivation and engagement (Elliot et al., 2017). Therefore, it is proposed that autonomy, competence, and relatedness promote innovative behaviour.

H8: There is a positive influence of autonomy on innovative behaviour.

H9: There is a positive influence of competence on innovative behaviour.

H10: There is a positive influence of relatedness on innovative behaviour.

3.4 Mindset and Innovative Behaviour

The same logic extends to mindset. A healthy mindset allows youth to think critically and collaborate effectively and take calculated risks which are important components of innovative behaviour (Thornhill-miller et al., 2023). Cognitive ability enables youth to observe and interpret the world around them. These problem-solving responses are associated with three dispositions: adaptability to effectively deal with change, entrepreneurial mindsets that stimulate creative, risk-taking and opportunity-seeking behaviour, and boundary-spanning perspectives that enable youth to identify new information across boundaries to develop solutions. These characteristics of creativity, flexibility, critical-thinking and collaboration will improve innovative behaviour. It is therefore expected that psychological needs and mindset will positively influence innovative behaviour among youth.

The study suggests that cognitive, adaptability, entrepreneurial mindset and boundary-spanning positively influence innovation behaviour.

H11: There is a positive influence of cognitive on innovative behaviour.

H12: There is a positive influence of adaptability on innovative behaviour.

H13: There is a positive influence of entrepreneurial mindset on innovative behaviour.

H14: There is a positive influence of Boundary-spanning on innovative behaviour.

3.5 Psychological Well-Being as a Mediator of Psychological Needs and Innovative Behaviour

Psychological well-being is an important mediating mechanism in this study because it explains how psychological needs are translated into innovative behaviour. Psychological well-being is defined as an individual's total emotional and mental state, with a focus on good functioning and life satisfaction rather than a lack of mental disease (Lcsw, 2024) where the individual manages life's challenges with purpose, positive feelings, ideas, and behaviours. This mediating role is important because unmet psychological needs may reduce well-being, which in turn weakens creativity, adaptive reactions, and innovation pursuits. Studies do show that those youth who adapt in a poor way experience more stress, perform worse in academics, and feel less satisfied in their life (Rathakrishnan et al., 2022).

This issue is especially relevant for B40 youth, as psychological stress, low self-regard, and limited support can obstruct their ability to generate new ideas and adapt to change. The justification for proposing psychological well-being as a mediator rests on three arguments. First, self-determination theory specifies a chain in which need satisfaction to psychological well-being to energised behaviour toward development of growth and creativity (Deci & Ryan, 1985; Ryan & Deci, 2000).

In a similar vein, Ryff and Singer (1996) have defined positive functioning as the ability to act on one's potential. Empirically, each link of the chain is supported: need satisfaction predicts well-being (Šakan et al., 2020), mindset characteristics predict well-being (Martin et al., 2012; Ellwood, 2022), and positive psychological states predict creative thinking and innovative thinking (De Dreu et al., 2008; Yu et al., 2025). However, it remained to be seen whether this full chain could be implemented in practice on a single model. Finally, based on the cognitive capacity perspective of scarcity (Mullainathan & Shafir, 2013), B40 students' ability to channel their needs and mindset into innovative behaviour may depend on whether well-being buffers that strain, as suggested by recent Malaysian evidence (Shamsuddin et al., 2024; Aziz et al., 2024). These observations position psychological well-being as a mediating mechanism, rather than an antecedent, outcome, or moderator.

Autonomy, competence, and relatedness each contribute to psychological well-being in ways that support innovation. Autonomy enhances life satisfaction, emotional stability, and purpose, enabling youth to explore ideas and act responsibly. Competence fosters optimism and self-regard, giving young people the confidence to generate ideas, solve problems, and attempt new approaches even in difficult situations. Relatedness strengthens psychological well-being through belonging and social support, reducing anxiety and encouraging cooperation and engagement. When youth feel related, they have self-regard, cope positively, and feel low anxiety and loneliness (Yu et al., 2025).

For this reason, psychological well-being is not treated as a separate outcome only, but as a pathway through which psychological needs influence innovative behaviour. This is why the study proposes that psychological well-being mediates the relationships between autonomy, competence, and relatedness and innovative behaviour.

H15: Psychological well-being mediates the relationship between autonomy and innovative behaviour.

H16: Psychological well-being mediates the relationship between competence and innovative behaviour.

H17: Psychological well-being mediates the relationship between Relatedness and innovative behaviour.

2.2.6 Psychological Well-Being as a Mediator of Mindset and Innovative Behaviour

Psychological well-being explains the relationship between mindset and innovative work behaviour as a condition of mental health where individuals project a positive balance of feelings, thoughts and behaviours. As individuals with high well-being are better able to face the challenges of life with a sense of purpose, persistence and better mental well-being than others, the mediating role of well-being is especially relevant since low levels of well-being lower cognitive resources to generate and implement novel ideas, increase fear of failure and self-doubt, burnout and lower rates of risk taking and creative problem solving, hence inhibiting innovation.

Cognitive is important because cognitive functions are how we think, reason and problem-solve to observe, analyse and interpret the surroundings. Cognitive flexibility supports creative problem-solving and innovative thinking, whilst well-being improves how cognitive ability is harnessed for actual innovation. Studies show that cognitive flexibility the mental ability to switch between different concepts or adapt to new situations is directly related to creative problem-solving and innovative thinking (De Dreu et al., 2008). The ability to adapt to changing circumstances allows individuals to cope with change more effectively. Adaptable individuals are better at coping with stress, and developing resilience and psychological well-being, and are more likely to turn change into inventive action.

The second pathway describes how entrepreneurial cognition (creativity, risk-taking, adaptability, initiative, and opportunity). People with an entrepreneurial mindset are frequently open to change, comfortable with uncertainty, and proactive in overcoming obstacles. They are opportunity-driven and motivated to constantly learn and develop, allowing them to negotiate all aspects of entrepreneurship (Haynie et al., 2008) that promotes innovative behaviour, powered by the psychological well-being that acts as a precursor of self-efficacy and mental resilience.

In this aspect, mindset was not directly linked to the innovative behaviour, this being partly due to the psychological condition as a mediator for cognitive, adaptability and entrepreneurial mindset which enabled creativity, resilience and innovation among B40 youth to a better in decision.

H18: Psychological well-being mediates the relationship between Cognitive and innovative behaviour.

H19: Psychological well-being mediates the relationship between adaptability and innovative behaviour.

H20: Psychological well-being mediates the relationship between entrepreneurial mindset and innovative behaviour.

H21: Psychological well-being mediates the relationship between boundary-spanning and innovative behaviour

4. CONCEPTUAL FRAMEWORK

The conceptual framework proposed in this study (Figure 1) is newly developed by the authors and is neither fully based upon nor a straightforward application of one particular existing model. Its development follows a theory-driven synthesis logic in three steps. The two sets of antecedent constructs are based on complementary theoretical traditions and show different views of the phenomena. Three psychological needs (i.e., autonomy, competence, and relatedness) are represented in SDT (Deci & Ryan, 1985; Ryan & Deci, 2000) and form the motivational basis for behaviour, while four mindsets (i.e., cognitive flexibility, adaptability, entrepreneurial mindset, and boundary-spanning) are drawn from the cognitive and mindset literature (Haynie et al., 2008; Martin et al., 2012; Elliot et al., 2017) and indicate the cognitive orientation through which individuals respond to change and opportunity.

Psychological well-being (Ryff & Singer, 1996) is additionally subsumed as the mediating mechanism into the framework. As discussed in Sections 3.5 and 3.6, psychological well-being is the theoretical point at which motivational and cognitive resources are transformed into behaviour, but neither of the two sets of constructs explains how this happens under conditions of scarcity (Mullainathan & Shafir, 2013). Innovative behaviour is positioned as the outcome because it is the behavioural expression most relevant to the national policy problem motivating the study, operationalised within the academic context defined in Section 2.1.

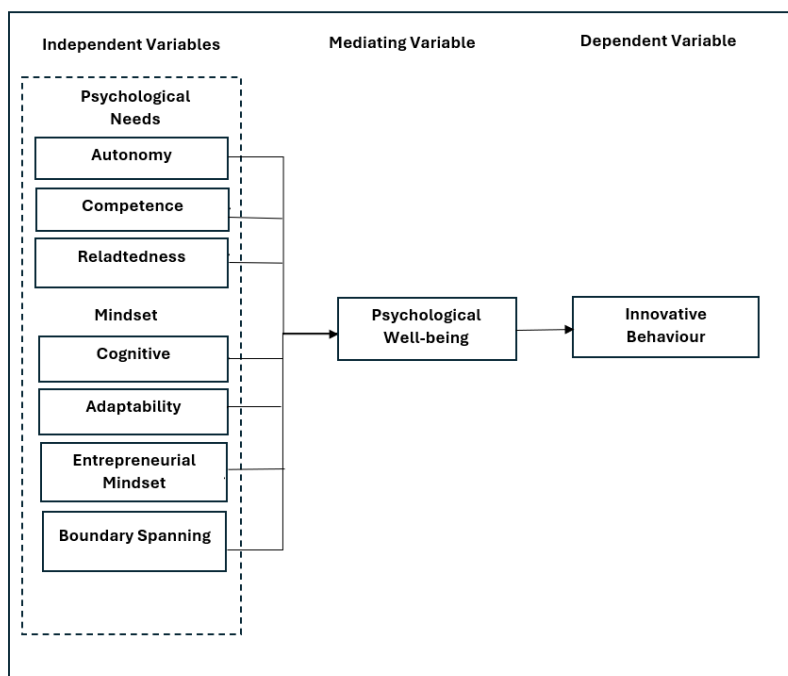


Figure 1. Conceptual Framework

5. PROPOSED METHOD

5.1 Research Design for Empirical Validation

The study proposes a quantitative, cross-sectional survey design to investigate the hypothesised model among B40 youth in Public Comprehensive Universities. The objectives are to investigate the relationship between psychological needs (autonomy, competence, and relatedness), mindset (cognitive flexibility, adaptability, entrepreneurial mindset, and boundary spanning), psychological well-being, and innovative behaviour.

Using the cross-sectional survey method, it examines the hypothesised relationships through structured questionnaires. It also allows for analysis of direct impacts, as well as mediators, such as the influence of psychological well-being on the relationship between psychological needs and mindset and innovative work behaviour.

5.2 Research Design and Unit of Analysis

The proposed design is a cross-sectional survey to investigate the relationships between psychological needs, mindset, psychological well-being, and innovative behaviour among B40 youth enrolled in Public Comprehensive Universities. Data are proposed to be collected at one point using a structured questionnaire to test the stated relationships and mediation effects. In the study, the unit of analysis is the individual student. This study focuses on undergraduate students in the B40 category, as they represent the target population that encountered psychological problems and socio-economic difficulties. It is appropriate to use a self-report measure to assess respondents' perceptions of their psychological needs, mindset, and psychological state with respect to innovative behaviour.

5.3 Population, Sampling Strategy, and Sample Size

In order to test the model, the population of this study is B40 youth currently enrolled in undergraduate students programs at a Public Comprehensive Universities. This is because a large number of students under B40 households study at that university, it can be used to study the relationships proposed. Purposive sampling can ensure that only qualified B40 participants are recruited based on self-disclosed household income in line with national income classification and from financial aid records. The instrument may be distributed via university, email invitations and face to face in order to maximise response.

A priori power analysis was conducted using G*Power 3.1 (Faul et al., 2009; Cohen, 1992) for the F test of R-squared deviation from zero, based on the maximum of eight predictors in the structural model. With a significance level of .05 and statistical power of .80, the minimum required sample is 109 for a medium effect size ($f^2 = 0.15$). For a small effect size ($f^2 = 0.05$), a more conservative expectation for the smaller indirect (mediation) effects tested in this model, the minimum required sample increases to 309. Therefore, a sample of 310 to 400 is suggested to ensure statistical power, stability of PLS-SEM path estimates given the number of parameters involved, and robustness of results in subsample tests. These benchmarks are no guarantee of representativeness. Estimation precision and statistical power are a function of sample size, while the representativeness of the B40 undergraduate subpopulation is addressed through the sampling design

5.4 Measures and Instrument Development

The survey is suggested to comprise five sections for each of the study variables. Section A consists of items to measure the three psychological needs, autonomy, competence and relatedness. Section B measures four dimensions of mindset, namely cognitive, adaptability, entrepreneurial mindset, and boundary spanning. Section C measures innovative behaviour. Section D measures psychological well-being and Section E measures the demographic profile.

All the constructs are reflective, so they were measured using multiple items in order to ensure the reliability and validity of the latent variables in the measurement model. This resulted in a total of nine constructs included in the measurement model: autonomy, competence, relatedness, cognitive, adaptability, entrepreneurial mindset, boundary spanning, psychological well-being and innovative behaviour.

The model provides a coherent account of how psychological needs, mindset and psychological well-being are related, and the measurement items used have been shown to be valid measures of the variables they are intended to measure.

5.5 Data Analysis Strategy: PLS-SEM and Robustness Checks

Partial Least Squares Structural Equation Modeling (PLS-SEM) is suggested to empirically validate the theoretical model proposed in this study, as it is suitable for theory building, predictive research, as well as testing complex models with multiple latent variables with no distributional assumptions required. The analysis will be conducted in SmartPLS 4.4.1 using the two-step process: evaluating the measurement model first, followed by testing the structural model.

Standard practices to examine the validity and reliability of the measurement model include composite reliability, Cronbach's alpha coefficient, average variance extracted (AVE), cross-loadings, the Fornell-Larcker criterion, and the HTMT ratios. To assess multicollinearity, the variance inflation factor (VIF) is calculated. These procedures can be employed to confirm the models before hypothesis testing begins. In structural modeling, the hypothesized relationships and effects (both direct and indirect) are then measured, and a number of robustness tests are conducted to support the theoretical and practical contributions of the study. These tests are usually known as robustness checks or tests of robustness.

5.6 Ethical Considerations and Study Administration

For this study to be accepted, ethical considerations should be made towards the protection of the targeted participants, namely B40 youths enrolled in Public Comprehensive Universities. Participation in the study should be voluntary. The purpose of the research study should be explained to respondents before completion of the questionnaire. Informed consent should be sought and gained, and the respondents should have the right to withdraw from the study at any time without any penalty. Participants' anonymity and confidentiality should be guaranteed and all data should only be used for academic research.

For administration of surveys in the study, either self-administered online questionnaires or self-administered paper questionnaires will be used. For the identification of the target B40 segment, purposive sampling will be conducted for the participants who self-declared their household income level or those using records related to financial assistance/livelihood support. Questionnaires can also be distributed through university mailing lists, student societies, or, with the lecturer's permission, in class for greater accessibility and a higher response rate.

5.7 Suggested Measurement Items

PSYCHOLOGICAL NEEDS		Ryan & Deci, 2000
Autonomy	I feel free to make my own choices in managing my life.	
	(Saya berasa bebas untuk membuat pilihan sendiri dalam menguruskan kehidupan saya.)	
	I feel comfortable expressing my ideas and opinions in daily situations.	
	Saya berasa selesa menyuarakan idea dan pendapat saya dalam situasi harian.	
	(I feel that people around me respect my decisions.)	
	Saya merasakan orang di sekeliling saya menghormati keputusan saya.	
	I often feel capable in handling the challenges in my life.	
	(Saya sering berasa mampu mengendalikan cabaran dalam kehidupan saya.)	
	I feel that I am good at what I do in my daily activities.	
	(Saya merasakan saya mahir dalam apa yang saya lakukan dalam aktiviti harian saya.)	
	I have been able to learn useful skills or abilities recently.	
	(Saya telah dapat mempelajari kemahiran atau kebolehan yang berguna sejak kebelakangan ini.)	
Competence	I feel close to the people I interact with regularly.	
	(Saya berasa rapat dengan orang yang sering berinteraksi dengan saya.)	
	I feel that people in my life care about me.	
	(Saya merasakan bahawa orang dalam kehidupan saya mengambil berat tentang saya.)	
	Relatedness	
	I get along well with the people around me.	
	(Saya berhubung baik dengan orang di sekeliling saya.)	

MINDSET		Martin & Rubin, 1995
Cognitive	I am able to look at problems from different perspectives. (<i>Saya mampu melihat sesuatu masalah daripada pelbagai sudut pandangan.</i>) I am willing to consider alternative solutions when facing difficulties. (<i>Saya sanggup mempertimbangkan penyelesaian alternatif apabila berhadapan dengan kesukaran.</i>) I can adapt my way of thinking when situations change. (<i>Saya boleh menyesuaikan cara pemikiran saya apabila keadaan berubah.</i>)	
Adaptability	I think about what my future will be like. (<i>Saya memikirkan tentang bagaimana masa depan saya nanti.</i>) I prepare myself for future challenges. (<i>Saya membuat persediaan untuk menghadapi cabaran pada masa hadapan.</i>) I am aware that my current decisions affect my future. (<i>Saya sedar bahawa keputusan yang saya buat sekarang mempengaruhi masa depan saya.</i>)	Savickas & Porfeli, 2012
Entrepreneurial Mindset	I am able to recognise opportunities to improve situations around me. (<i>Saya mampu mengenal pasti peluang untuk memperbaiki keadaan di sekeliling saya.</i>) I take initiative to act when I see a potential opportunity. (<i>Saya mengambil inisiatif untuk bertindak apabila melihat peluang yang berpotensi.</i>) I enjoy finding new and creative ways to solve problems. (<i>Saya suka mencari cara baharu dan kreatif untuk menyelesaikan masalah.</i>)	Davis et al., 2016
Boundary-Spanning	I seek information or ideas from people outside my usual group when working on tasks or projects. (<i>Saya mendapatkan maklumat atau idea daripada individu di luar kumpulan biasa saya semasa melaksanakan tugas atau projek.</i>) I communicate with people from different groups to improve how I do my work or assignments. (<i>Saya berkomunikasi dengan individu daripada kumpulan lain untuk menambah baik cara saya melaksanakan kerja atau tugas.</i>) I use information from external sources to help solve problems or complete tasks. (<i>Saya menggunakan maklumat daripada sumber luar untuk membantu menyelesaikan masalah atau menyiapkan tugas.</i>)	Kellogg, Orlikowski & Yates, 2006
PSYCHOLOGICAL WELL-BEING		
Psychological Well-Being	I like most aspects of my personality. (<i>Saya menyukai kebanyakan aspek dalam keperibadian saya.</i>) I accept both my good and bad qualities. (<i>Saya menerima kualiti baik dan kelemahan yang ada pada diri saya.</i>) I have warm and trusting relationships with others. (<i>Saya mempunyai hubungan yang mesra dan saling mempercayai dengan orang lain.</i>)	Ryff's Psychological Well-being
INNOVATIVE BEHAVIOUR		
Innovative Behaviour	I create new ideas to improve my academic tasks or learning activities. (<i>Saya menghasilkan idea baharu untuk menambah baik tugas akademik atau aktiviti pembelajaran saya.</i>) I search for new methods, techniques, or approaches to solve academic problems. (<i>Saya mencari kaedah, teknik, atau pendekatan baharu untuk menyelesaikan masalah akademik.</i>) I generate original solutions for difficulties encountered in my studies. (<i>Saya menjana penyelesaian yang asli bagi kesukaran yang dihadapi dalam pengajian saya.</i>)	Janssen, 2000

6. EXPECTED RESULTS AND DISCUSSION

6.1. Theoretical Contributions

This conceptual paper will make some theoretical contributions to the motivation, mindset, psychological well-being, and innovative behaviour literature and knowledge by explicating the relationship between psychological needs, mindset, and innovative behaviour among B40 youth. Furthermore, this paper attempts to fill a gap in the literature by investigating psychological well-being as a mediating variable between psychological needs and innovation outcomes.

First, the study builds on SDT by conceptualising autonomy, competence, and relatedness both as psychological needs that foster self-motivation and psychological well-being and as antecedents to innovative behaviour. Though SDT suggests that autonomy, competence, and relatedness are basic needs for well-being, enabling youth to think more positively, feel more skilled, and act more creatively in challenging contexts (Ryan & Deci, 2000; Deci & Ryan, 1985; Wang et al., 2019). More importantly, this study is expected to provide a clearer conceptual explanation for how psychological resources become innovative action among youth, and it can act as a stronger foundation for further theory building in youth development, well-being, and innovation.

Second, the study contributes to the literature on mindsets by combining cognitive flexibility, adaptability, entrepreneurial mindset, and boundary-spanning into a single model together with psychological well-being and innovative behaviour. In this way, the model sees these new dimensions as distinct ways of observing, adjusting, seeking opportunities, and connecting across boundaries as a way of providing a more subtle description of the role of mindset in supporting well-being and innovation. It is anticipated that this study will show that youth are motivated not only by needs but that these needs can become a pathway for personal growth, resilience, and innovation. It can give a more youth-centred explanation of how motivation develops into innovative behaviour in difficult social settings.

Third, the paper contributes theoretically to the literature by explaining the mediating role of psychological well-being. The importance is based on the fact that the existing literature remains largely unexplored regarding the role of psychological well-being in mediating the impact of psychological needs and mindset on innovative behaviour. By placing the concept of well-being in the center of the model it shows that internal psychological resources may lead to innovative action rather than a direct effect.

Fourth, the theoretical contribution of the study is contextual because the focus is on B40 youth. B40 youth are known to have psychological and socio-economic liabilities that might inhibit innovation and personal development. Similar challenges have been observed among low-income groups globally, who face structural barriers to entrepreneurship and innovation (Bosma & Kelley, 2020). Although the literature has called for more research on the interplay of psychological needs, mindset, and psychological well-being among B40 youth, this study seeks to theorize a model that fits the actual lived experience of B40 youth and is expected to give a more realistic and grounded account of youth innovation in low-income settings, and it can give evidence that is more relevant for understanding the challenges faced by underrepresented youth groups in Malaysia.

Finally, this study is expected to provide a solid foundation for future empirical research, intervention design, and policy development. By demonstrating how psychological needs and mindset can strengthen psychological well-being and innovative behaviour, the paper offers practical insights that educators, policymakers, and researchers can use to design more effective support strategies for B40 youth.

6.2. Practical Implications for University Management and Policy

There are several implications for universities, lecturers, and student support units. Universities need to provide a learning and campus environment that satisfies students' basic psychological needs for autonomy, competence, and relatedness so that need frustration does not harm students' motivation, well-being, and innovative behaviour. It involves increasing opportunities for choice, providing support to increase a sense of efficacy, and increasing opportunities for connection with lecturers and with peers.

For lecturers, the proposed framework suggests adopting more autonomy-supportive teaching practices. When students think their views are respected and they are given some degree of control, they are more likely to engage in the classroom, take academic risks, and develop innovative thinking patterns. Such skills are especially important in higher education, which stresses creative thinking, collaboration, and problem solving.

Universities can provide competence-building interventions (i.e., skills workshops, feedback-oriented learning, coaching, experiential learning, etc.) to help students improve their self-efficacy and innovative

capabilities by applying what they've learned in practical experiences. This may be due to the fact that supporting competence will probably raise people's self-regard, optimism, resilience, and willingness to engage with outside ideas, all of which are helpful for wellbeing and innovation. Next, universities may develop more opportunities for group work, peer support, mentoring, and collaborative learning, fostering an environment where students can contribute ideas without fear. Strong peer connections may help students to communicate more openly, cooperate more, and behave more creatively in school.

Student affairs departments, counsellors, and other university leaders can thus use the model to help create holistic well-being programmes that reduce stress, build resilience, and help students to transform their psychological resources into innovative behaviours. The underlying proposition is that psychological needs and mindset are translated into behaviour through the mechanism of well-being. The proposed framework may likewise inform institutions that wish to develop future-ready graduates, particularly from disadvantaged student backgrounds, with both innovation capacity and well-being.

6.3. Limitations and Directions for Future Research

The proposed study would also be limited as a quantitative correlational study used to understand the relationship between psychological needs, mindset, psychological well-being, and innovative behaviour among youth, and not as a cause-and-effect based study.

Another limitation is related to the scope of psychological and behavioural variables. It is acknowledged that other factors could influence innovative behaviour and well-being. The relationships among psychological needs, mindset and innovative behaviour among B40 youth as described in this paper need to be further explored as this group is under-researched.

More generally, future research may apply the model to other populations of students, youth, or institutions of higher education to compare the generalizability of the model. Future research may also extend longitudinal studies to examine how the relationships in the model operate over time, as youth pass through different transitions in their academic careers and adult careers, or by studying other variables that may explain the relationships in the model.

Future studies could utilize this framework to conduct longitudinal assessments on how specific university interventions such as mentorship programs (Relatedness) or project-based learning (Autonomy) correlate with the long-term career success and entrepreneurial output of B40 graduates. This would provide the empirical evidence needed to transform public university campuses into true hubs of social-innovation excellence. Therefore, the current study can act as a basis for more in-depth and context-specific research on youth development and innovation.

7. CONCLUSION

This conceptual article proposes a framework of how psychological needs and mindset impact innovation behaviour among B40 youth. It argues that fulfilling psychological needs such as autonomy, competence, relatedness, and positive mindset dimensions result in better psychological well-being, which in turn increases the potential to use a person's internal resources to engage in creative and adaptive behaviour in the face of challenges. Using the students of Malaysia public comprehensive universities for this study as a convenient sample of B40 youth's socio-economic disadvantage but potential as a development resource, the framework could be useful to policymakers, educators, and researchers for building B40 youth's resilience, creativity, and well-being, and in planning future studies, policies, and interventions to prepare B40 youth for a better future.

Building on this potential for targeted intervention, the proposed framework shifts the narrative from viewing B40 youth through a lens of socio-economic deficit to one of untapped psychological potential. By addressing the structural and psychological barriers simultaneously, the model provides a blueprint for what can be termed "Psychological Levelling Up." For educators, this necessitates a move beyond traditional rote learning toward autonomy-supportive teaching environments where students are encouraged to take risks and view failure as a data point for growth rather than a finality. For policymakers, it underscores that

financial aid, while foundational, is insufficient if not coupled with programs that cultivate Psychological Capital (PsyCap).

By integrating mindset coaching and mental health support into the core university experience, institutions can ensure that B40 students do not just survive the academic journey but emerge as agile innovators capable of transforming their unique lived experiences into creative solutions for the nation's most pressing challenges. Future studies could utilize this framework to conduct longitudinal assessments on how specific university interventions such as mentorship programs (Relatedness) or project-based learning (Autonomy) correlate with the long-term career success and entrepreneurial output of B40 graduates. This would provide the empirical evidence needed to transform public university campuses into true hubs of social-innovation excellence.

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9. CONFLICT OF INTEREST STATEMENT

The author declares that there is no conflict of interest regarding the publication of this paper.

10. AUTHORS' CONTRIBUTIONS

Nor Farah Izatie Mohamad Ismail: formulation of core research questions, literature review, conceptual framework, and writing of the original draft; **Mohd Safwan Ramli:** intellectual leadership and supervision, critical review, editing, and refinement of the theoretical framework and manuscript; **Badli Esham Ahmad:** reviewing and editing for academic language quality, scholarly tone, and structural coherence; **Norulhuda Tajuddin:** conceptual contribution, literature synthesis, and methodology refinement; **Nur Hidayah Ayob:** literature synthesis, conceptual framework input, and alignment with institutional policy contexts. All authors reviewed and approved the final manuscript.

11. DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES

This manuscript was prepared by the authors, and the writing, analysis, and interpretation remain the responsibility of the authors. AI tools were not used to generate the substantive content of this paper.

12. DATA AVAILABILITY/SUPPLEMENTARY MATERIALS

This is a conceptual paper; no empirical data were collected or analysed. Any data generated in future empirical validation of the proposed framework will be handled in accordance with the relevant institutional and ethical guidelines.

13. ETHICS STATEMENT

This is a conceptual paper and did not involve human participants; therefore, ethical approval and any form of consent for participation was not required. Ethical clearance for the empirical stages of this study will be obtained from Universiti Teknologi MARA (UiTM). All future research participation would be voluntary, respondents would be informed, and consent obtained before the collection of data, and all data would be confidential and used for research purposes only.

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