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Project Based Learning Curricula for Environmental Education in India

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Abstract

India is facing a dire environmental crisis and education has been used as a tool to help people mitigate and adapt to the consequences of environmental degradation. However, there has not been much change in environmental behavior, hence a different kind of curricular approach is required. Research has identified that effective environmental curricula are contextualized, situated and transdisciplinary, and co-owned by students. These engender radical shifts in cognition, affect and behavior and create an understanding of the cause and consequences of environmental issues and inspire environmental activism. The curricula enable student voice and choice. However, for a curriculum to be transformative it must also explicitly integrate the cognitive, affective and behavioral dimensions of learning. PBL is a constructivist pedagogy which meets several criteria for transformative curricula. PBL uses learner centric practices including inquiry, collaboration, scaffolding, reflection and technology, and opportunities for action to create transformative learning experiences. While PBL has not been widely used in India, the few implementations have shown positive results. PBL should be widely adopted as an educational approach to address environmental issues in India. However, there are several challenges which must be identified and addressed for effective PBL implementation.

Keywords: **environmental education, project-based learning, India, conceptual paper**

1.0 Introduction

Education has been used as a tool to help people adapt to and mitigate challenges posed by environmental crises. In India, the importance of environmental education has been emphasized by the Indian Constitution and the Supreme Court. NCERT, the national curriculum research body, has created curricula, generated teaching and learning materials and implemented teacher professional development modules on environmental education. However, despite this effort, India continues to face a worsening scenario in environmental degradation, pollution and climate change impact.

The paper starts with a discussion on how education plays a significant role in enabling people to mitigate and adapt to environmental challenges, however education has failed to create pro-environmental behavior change. The paper summarizes research findings on what effective environmental curricula should consist of and emphasizes the integration of the cognitive, affective and behavioral dimensions for transformative learning to occur. The author argues that constructivist Project Based Learning meets several criteria outlined for transformative learning because it enables student inquiry, embeds voice and choice, encourages peer collaboration, personal reflection and provides opportunities for action. The paper elaborates the challenges in PBL adoption in India primarily due to the difficulties in creating situated curricula and implementing them in Indian schools. The paper concludes with some recommendations required to handle these challenges.

2.0 Background

2.1 India's Environmental Crisis

India ranked 177th out of 180 countries in the overall Environmental Performance Index, rock bottom at 180th in Environmental Health, 178th in Air

Quality, 145th for water pollution ("Environmental Performance Index", 2022). It is ranked 3rd in terms of global air pollution, being home to 21 of the top 30 most air polluted cities in the world (IQAir, 2022) and is the third largest emitting nation in the world (Global Carbon Atlas, 2020). The latest State of the Environment report paints a dire picture of increasing environmental degradation, worsening air quality, increasing water and land pollution (Centre for Science and Environment, 2022). Mitigating the impact of environmental degradation requires an immense transformation in human lives on the personal, national and international front. Economies and patterns of consumption, social structures, culture and society, and personal values and ideologies will all need to be reoriented (Amel et al., 2017).

2.2 Role of Education

Education has been recognized as a strategic tool to help communities mitigate and also adapt to increasing environmental challenges (Chhokar *et al.,* 2012; Muttarak & Lutz 2014). Education is the most effective way and economical way of reaching people to inform them about the impact of environmental degradation (Amel *et al.,* 2017). Further, education has a powerful ripple effect. Increased levels of education reduce vulnerability to environmental disasters through improved socio-economic status, access to information, resources and capital. Education enhances cognitive ability and problem-solving skills that equip people to respond to disasters (Muttarak & Lutz 2014). Lastly, children who learn about environmental damage can foster concern in their families (Lawson et al., 2019).

2.3 Environmental Education in India

Article 51A(g) of the Indian Constitution makes it a fundamental duty for every Indian citizen to preserve the environment and natural resources (The Constitution of India, 1950). In 2003, the Supreme Court of India mandated that schools teach environmental education. At the national policy level, an integrated,

holistic approach to environmental education is advocated. The goal at the primary level is to foster awareness and interest through concrete experiences. At the upper primary, the focus shifts to connecting students with resources in the local and global context and at the secondary stage, policy recommendations include hands-on learning conducted both in and out of school (Shin & Akula, 2021). The National Curriculum Framework recommends that Environmental Studies be both infused into other subjects and be taught separately (Sharma, 2020). As a part of the Decade for Education for Sustainable Development (DESD), India's national curriculum body, the National Council of Educational Research and Training (NCERT), recommends the Whole School Approach to environmental education and has created guidelines for greening schools, modifying teachers handbooks and curricular infusion (National Council for Education Research & Training, 2017).

Unfortunately, the failure of education to engender pro-environmental behavior is documented by research. Chhokar et al., (2011, 2012) who investigated Indian secondary school students' knowledge of and willingness for pro-environmental behavior found that while the levels of environmental concern were high, the students preferred taking action which they knew had minimal impact over actions which were known to be more impactful but were personally inconvenient. The number of Indian adults who are environmental activists do not reflect thirty years of environmental education programs conducted by a plethora of non-governmental organizations in India and the sheer numbers of children who potentially attended these in their school going years (Tandon, 2018).

One reason is that curriculum development in India is largely centralized, hence, disconnected with local realities and lacks contextual relevance. In a country the size of a continent, curricula created in New Delhi fail to make sense to children in geographically different Tamil Nadu, Ladakh or Kashmir (Aves, 2021). Children reel off facts and factoids, gleaned from textbooks, but fail to demonstrate deeper understanding or apply critical thinking to environmental issues (Narlanka, 2017). However, there is a deeper disconnect. Aves (2021) propounds the notion of "inhabitation" versus "ex-habitation". He explains that modern, capitalist driven

curriculum development creates a disconnect between the learner and their location, undermining a sense of belonging and engendering an egoistic outlook. With no sense of belonging or connection, a person views natural resources as freely available and freely exploitable. Hence, while Chennai gets routinely flooded and New Delhi chokes with smog every year, students in Indian schools fail to connect the high consumption driven economics that has created these situations.

Another reason for the shortcomings of environmental education is that the scope and content of environmental education is unclear. Moreover, the focus is on knowledge about environmental degradation rather than conceptual understanding and linkages (Shin & Akula, 2021). Furthermore, research studies reveal that science teachers themselves are unsure on the need to and manner in which they could infuse environmental education concepts into science teaching or connect them in a transdisciplinary manner (Sharma, 2020). A qualitative research study of Elementary school teachers found that not only teachers' factual knowledge of the NCERT Green Curriculum was limited, and their conceptual understanding of its mechanics and goals was even more so (Namdeo, 2018). While Project Based Learning (PBL) is recommended for learning environmental issues, it rarely happens in practice (Sharma, 2020; Shin & Akula, 2021).

3.0 Research Objective

The conceptual paper seeks to explain the need for a different curricular approach for environmental education in India by understanding research recommendations on effective environmental education curricula. The paper then aims to explain how Project Based Learning provides transformative learning experiences and meets several criteria for effective environmental education curricula. The paper also highlights some examples of PBL implementation in India but then seeks to explain the challenges in implementing PBL in the Indian context and ways to overcome these.

4.0 Literature Review

4.1 Characteristics of Effective Environmental Curricula

According to constructivists, postmodern curriculists and critical theorists, environmental education curricula should be creative, visionary and transdisciplinary (Rousell & Cutter-Mackenzie-Knowles, 2020; Selby et al., 2020; Sharma 2021; UNESCO, 2016) and create epistemic shifts in perspective, cognition and affect which are critical for responding effectively to environmental challenges (Singleton, 2015). These shifts should create what Freire (1996) defined as "conscientization" amongst learners through a deep understanding of social, economic and environmental justice issues. Environmental education curricula should fuel action (Hungerford & Volk, 1990; Singleton, 2015). Finally, the curricula should not just be co-created but also co-owned by the children-participants (Gregersen-Hermans, 2021).

In terms of content, curricula should address not only the consequences of environmental damage, but also the socio-cultural, ethical and political causes as well as create the space for envisioning and enacting effective oriented solutions (Amel et al., 2017; Jensen, 2002; Kwauk, 2020; Selby et al., 2020; Sharma, 2021). Moreover, curricula need to be embedded in the local context to provide authentic personal connections for learners (Sharma, 2021; UNESCO 2016a). Research further explicates how the cognitive, affective and behavioral dimensions of learning should be addressed by environmental curricula.

4.1.1 Cognitive Dimensions

Environmental curricula should create a convergence of different types of knowledge - *Systems or declarative knowledge* or knowing "what" about the environment, *procedural or action related knowledge* or knowing "how" to solve the problems, *effectiveness knowledge* - the cost/benefit of any action, and *social*

knowledge ie.what "others" do (Frick et al., 2004; Jensen, 2002; Kaiser & Fuhrer, 2003).   In an activity based learning module in Puducherry, India, hands-on experience, experiential learning and field exposure led to enhanced interest in environmental education and local biodiversity amongst 13-15 year olds (Ramadoss & Poyyamolli, 2011). Similarly, in a Malaysian study, Form 4 students who learned about Climate change in a constructivist, experiential manner showed both better conceptual understanding (Karpudewan & Khan, 2017). Furthermore, to shape active, engaged, reflective and independent learners (Singleton, 2015), the curricula should include opportunities for open-mindedness, critical and creative thinking and problem solving; reflection and metacognition and cognitive mindfulness (Amel, et al., 2017; Corner, 2015; Kwauk, 2020; Sharma, 2021; UNESCO, 2016; Wang et al., 2019).

4.1.2 Affective Dimension

Schools must provide opportunities for bonding with nature and place to engender feelings of love, belonging and caring in learners which in turn would promote the drive to preserve the environment (Amel et al., 2017; Braun & Dierkes, 2019; Gregersen-Hermans, 2021; Liefländer et al., 2013). Another important component is the development of self-efficacy and outcome expectancy to generate empowerment (Chawla & Cushing, 2007; Corner et al., 2015). Hungerford and Volk (1990) in their seminal work bemoan that while "empowerment" is the cornerstone of environmental education, it is often neglected in practice. Provisions for developing agency must be embedded in an effective environmental curriculum. Additionally, good pedagogical practices like creating opportunities for collaboration, participation, discussion are essential components (Corner et al., 2015; Rousell & Cutter-Mackenzie-Knowles, 2020; UNESCO 2016a) In a British study comparing climate beliefs and intent for behavior, Devine-Wright et al. (2004) found that children belonging to a cooperative learning environment which enabled empowerment, decision making and agency reported higher levels of awareness and self-efficacy regarding climate change compared to their peers.

4.1.3 Behavioral Dimension

However there has to be a paradigm shift from the personal sphere actions to the more effective collective sphere actions which involve community and political activism (Chawla & Cushing 2007; Nissen et al., 2021; Sharma, 2021). Membership in a movement or organization engaged with environmental activism adds to the sense of collective efficacy (Amel et al., 2017). Other researchers go further and advocate student involvement with formal and informal community initiatives. Jensen (2002) reports that Danish students were given the opportunity to envision and carry out environmental actions they believed were necessary. Students wrote letters in newspapers, petitions & complaints, created compost containers, demonstrated against traffic conditions etc which eventually led to town-wide policy changes. Selby et al. (2020) highlight how school students in tiny St Vincent and the Grenadines were involved in both long-term community initiatives and activism, like SusGren & Union Island Environment Attackers which led to heightened awareness about climate change. In the Australian, the 'Climate Change and Me' initiative, 135 children and youth conducted ethnographic research in local communities and showcased their results in public exhibitions and on online platforms (Cutter-Mackenzie & Rousell, 2019). Another interesting intervention was the 'Lens on Climate Change' where child-participants created short films on the impact of climate change in their communities (Trott, 2019; 2020). Children in the "Science, Camera, Action" participated in hands-on, outdoor activities to build understanding of local ecology, created short photostories and then participated in local awareness raising campaigns (Gold et al., 2018; Leckey et al., 2021; Littrell et al., 2020; Littrell et al., 2020a; Oonk et al., 2017).

In the Indian context, children have participated in ecology photo exhibitions, ("Photo exhibit gives sneak peek" 2022); used art to counter threats to a bird sanctuary (Shekar, 2020), and protested about climate change (Notandas, 2020). However, majority instances of child activism are divorced from what they are learning at or being encouraged to do at school. (Sharma, 2021; Spyrou, 2020). There are a miniscule number of schools which take a radically different approach to environmental education by integrating activity or activism. Students, Educational and Cultural Movement of Ladakh (SEMCOL) is quite famous for its non-traditional approach to education which is integrated and rooted in local contexts. The Marudam farm school

in Tiruvannamalai, Bhoomi College in Bangalore and Puvidham School in Nagarkoodal have adopted holistic environmental learning which integrates the cognitive, affective and behavioral dimensions (Aves, 2022). Additionally, a number of non-formal environmental initiatives work with children to raise environmental awareness. (Tandon, 2018).

5.0 Transformative Learning

Most of the initiatives discussed above address one or two of the dimensions of learning - usually the cognitive and sometimes the affective or behavioral. However, as Sipos et al., (2008) argue, a truly transformative curriculum must integrate all three dimensions to create shifts in thinking, perception and behavior. Their framework, the Head, Hand, Heart is based on Mazirow's Theory of Transformative Learning and distills aspects from different pedagogies, including Critical Pedagogy, Active Learning, Participatory Action Research, Environmental Learning and Problem Based Learning. It then integrates different elements to design a comprehensive Framework for Sustainability Education. Sipos et al., theorize that curricula which meet these objectives will create radical learning experiences resulting in profound shifts in knowledge, skills and attitudes related to ecological, social and economic justice. It is not sufficient to meet the objectives, they must be integrated to create the necessary behavior transformation and provide an insight into whether the teaching has been learned, internalized as belief or integrated ontologically in the learner. Table 1 outlines the specific dimensions of the cognitive, affective and behavioral learning objectives.

Table 1: Learning Objective Criteria for Transformative Sustainability Curriculum
(Sipos et al., 2008)

Head (Cognitive)	Hand (Behavioural)	Heart (Affective)
Cognitive engagement	*Personal* ● Experiential Learning ● Applied Learning	Empowering
Transdisciplinary curriculum	*Classroom* ● Democratic and participatory learning environment ● Conflict resolution	Creative
Critical thinking	*Community* ● Collaborative ● Service Learning	Fun
Systems thinking		Values focused thinking
Understanding of sustainability		Inclusive
Understanding of global citizenship		Place based

6.0 Project Based Learning

6.1 Characteristics of PBL

PBL fits several of the criteria required for transformative sustainability education. PBL is an instructional approach for deep learning or learning with understanding. It is rooted in constructivist theory with students as active participants in collaborative construction of knowledge. PBL enables students to use higher order cognitive tools like convergent and divergent thinking, critical & analytical thinking, design skills, problem solving, making decisions, creativity and curiosity. Furthermore, students develop autonomy, self-discipline, responsibility and collaboration skills through participation in PBL. However, it is the creation of an authentic artifact which has relevance beyond the four walls of the classroom that differentiates PBL from other similar approaches (Condliffe et al. 2016; Du & Han,

2016; Handrianto & Rahman, 2019; Hasni et al 2016; Kokotsaki et al., 2016; Krauss & Boss, 2013; Larmer, et al., 2015).

Project Based Learning is centered around a *challenging problem* or *driving question*. The question in its authenticity, explicit connection with the real world and personal relevance sets the context for meaningful and applicable inquiry and creates the drive to learn. The driving question leads to *sustained inquiry* for which students conduct investigations, collect and analyze data to develop a solution or artifact. The frameworks also emphasize student choice or autonomy, which Larmer et al., (2016) refer to as *"voice & choice"* which Dewey (1997) felt was an essential prerequisite for the "cognitive act". In keeping with their constructivist and social constructivist roots, PBL frameworks are unanimous in recognizing the importance of *collaboration* whereby students develop an understanding of content matter and improve their motivation to learn and create a better product or artifact. An important design principle of PBL is the provision of *scaffolding* which mediates the inquiry and maintains student engagement. *Technology* is seen as an important enabler in PBL by providing scaffolding to students, helping in their research, collaboration and communication with peers, and creating the final product or artifact. *Reflection* plays a key role in PBL both for outward thinking about the project, and inward reflection or metacognition. *Assessments* are adapted to the PBL ethos and use rubrics, self & peer assessments, portfolios, public exhibitions of products etc. PBL requires there to be an *authentic product* at the end of the project which has to be presented to a public audience (Chen & Yang, 2019; Condliffe et al., 2016; Hasni et al., 2016; Krajcik & Shin, 2014; Krauss & Boss, 2013; Kokotsaki et al., 2016; Larmer et al., 2016).

6.2 PBL as a Transformative Curriculum

Research has documented that a well-structured PBL curriculum has the potential to meet several if not all these criteria or outcomes.

6.2.1 Cognitive Outcomes

Chen & Yang's (2019) meta analysis of 20 years of research studies conducted across 189 schools in 9 countries used effect size to understand the impact of PBL on academic achievement. They found that students learning through PBL had significantly better academic achievement when compared to students learning via traditional instruction. They explain the positive impact of PBL by stating that traditional instruction calls on lower order cognitive skills in children, doesn't spark curiosity, and hence learning is superficial, thus poorly retained. Other studies have also found positive impact of PBL in test scores (Hasni et al., 2016), science across different educational stages and countries (Larmer & Mergendoller, 2016; Kokotsaki et al., 2016), history (Larmer & Mergendoller, 2016), maths & technology (Chen & Yang, 2019). PBL has seems to have a good impact on cognitive competencies (Condliffe et al., 2016), specifically in improved retention (Larmer & Mergendoller, 2016; Hasni et al., 2016), meaningfulness & connection to prior knowledge due to the actual use of knowledge (Larmer & Mergendoller, 2016), the use of reflection and documentation (Kokotsaki et al., 2016) and metacognitive skills including self-monitoring, self-direction & self-regulation (Chen & Yang, 2019). Studies have shown an increase in motivation to learn and an improved attitude towards learning (Chen & Yang, 2019; Hasni et al., 2016). As engagement is the expressed part of inner motivation, PBL's seems to increase student engagement due to the higher cognitive challenge (Kokotsaki et al., 2016),

In the Indian context, the famous example was the Hoshangabad Science Teaching Project which ran for 30 years and impacted over a hundred thousand students in 1000 schools. The project used discovery learning and other PBL based methods to teach science concepts. These students outperformed the regular students in conventional examinations, national college entrance examinations and special evaluation methods designed to measure scientific skills (Bazaar, 2002). Shome et al., (2011) also found improved problem solving and critical thinking skills. High school students who underwent a PBL treatment in learning about pollution & ozone depletion showed significantly better performance on the post-test than the control group (Elizabeth & Sangeetha, 2018). Jamal & Yousuf (2021) found heightened

creativity, metacognition and motivation amongst students during an environmental education PBL in India where middle school students wrote and illustrated storybooks on nature.

6.2.2 Behavioral & Affect Outcomes

In terms of intrapersonal and interpersonal skills, autonomy (Chen & Yang, 2019; Hasni et al., 2016), collaboration among students (Hadrianto & Rahman, 2018), authenticity of problem and outcome (Larmer & Mergendoller, 2016) and its inherent novelty value (Larmer & Mergendoller, 2016). PBL also seems to improve self reliance, (Kokotsaki et al., 2016).

In India, Shome et al., (2011) conducted a PBL with 6th graders who used design thinking to construct a model of a playground. They found improved confidence, social and interpersonal engagement. Susmitha et al.,'s (2018) conducted a PBL where 8th graders were taught tinkering and had to construct and test boats made of plastic bottles. They found improvements in self efficacy. Alekh et al.,'s (2018) maker PBL with 8th graders resulted in reduction in performance related tension and pressure. Somanath et al., (2017) found that well structured mentoring and scaffolding in a PBL helped teenagers in a traditional school break mental barriers to innovation and experimentation.

7.0 Challenges of designing and implementing a PBL curriculum

PBL curriculum design and implementation is no cakewalk. The challenges can be bucketed into two areas: the challenge of designing a PBL curriculum and the challenges of implementing a PBL curriculum.

7.1 Challenges in Designing a PBL curriculum

The first difficult challenge lies in the process of designing a non-technical PBL curriculum. Non-technical curricularists have radically redefined the nature of what a curriculum should be. Pinar (2012) describes curricula as "difficult conversations", taking etymological meaning from the Latin root word "currere" which means "to run the course" . The classical approach of curriculum design - objectives, content, learning experiences and evaluation (Hunkins & Ornstein, 2016) comes under question. Moreover, non technical curricula aim to foreground and amplify the "petit recit" (Slattery, 2012) of all the learners, to address and meet the personal needs, make the experience personally meaningful and address cognitive, affective and behavioral learning dimensions. Hence, more research is needed on resolving the contradictions posed by the need to integrate different perspectives and dimensions of learning without losing coherence (Ladson-Billings, 2008). Another important aspect is that children need to have a "hand" and a "voice" in their learning and the curriculum development and evaluation should involve children as "co-researchers". However, such an involvement is extremely rare (Rousell & Cutter-Mackenzie-Knowles, 2020) and quite challenging in India.

As non technical curricula are by definition, non-prescriptive, ever-evolving and no-one-size-fits-all, there is a lack of widely accepted roadmaps or curriculum models and humanistic curriculum designers must in effect reinvent the wheel each time, contextualized to the particular situation they are addressing. This lack of consistent frameworks plagues PBL curriculum design (Condliffe et al., 2016; Du & Han, 2016). Frameworks range from Kolb's Experiential Learning Model developed in the 70's (Kolb & Fry, 1974) to the more recent Gold Standard from the Buck Institute for Education, an organization focussed exclusively on promoting PBL (Larmer et al., 2016). However, curricula created by PBL organizations tend to be very prescriptive and require adaptation to the local context of the school in terms of activities, duration and depth of implementation which can result in loss of fidelity to the framework (Condliffe et al., 2016) especially when the implementation is in a vastly different culture like India. The alternative is that teachers develop their own curricula but that brings other challenges in terms of coherence (Condliffe et al.,

2016), coverage, alignment with educational standards, scheduling and time management (Larmer et al., 2016), especially in India where teachers are unfamiliar with constructivist curriculum development.

7.2 Challenges in Implementing a PBL curriculum

The second key challenge lies in the implementation of the curriculum. In a constructivist classroom, content knowledge is not predetermined, but rather co-constructed, driven by student questions through inquiry and collaboration with adults, peer groups and audio-visual-textual resources. Concrete experiences and interactions with adults from the real world form a critical part of the knowledge construction. The constructed knowledge and experiences are reflected upon to create further understanding. The classroom discourse is democratic and students' voice is foregrounded through discussions which shape the construction of knowledge. The traditional role of the teacher is dismantled and replaced by a supportive facilitator and mentor. Assessments are formative and aimed at providing scaffolding and feedback, but are not judgemental. The final goal is an authentic product which is relevant outside the four walls of the classroom.

Weimer (2002) outlines what it takes to shift school and classroom culture to become more learner-centric as is required for effective implementation of PBL curricula. The first involves a shift in the role of the teacher from a "knowledge-giver" to a facilitator. This means teachers must consciously "remove" themselves from the focus of classroom discourse by designing their instruction to enable student inquiry and peer to peer work. Evaluation and assessment need to become routes to further learning, and not ways to sit judgment on children. The function of content needs to change and become a way to build knowledge and develop learning skills like reading, comprehension, metacognition and self evaluation and collaboration. The balance of power in the classroom must be shared to enable student voice and choice.

All these require a significant shift in school culture, teacher beliefs and student expectations. However, this cultural shift is extremely challenging. The Indian education system follows Tylerian curriculum models, and is highly didactic, and located in a pervasive 'what to learn' culture. Indian classrooms are oriented towards efficient test taking, and producing docile employees (Pinar, 2015). There is an inordinate focus on what has been termed as 'surface knowledge' - defined as knowledge gained through memorization with the goal of exam success. Students are passive participants in the learning process and are actively dissuaded from displaying curiosity, critical thinking, creativity or questioning attitudes in class (Sriram, 2018). Furthermore, the cultures of the Indian schools and the hidden curriculum all work against progressive change (Alekh, 2018; Niesz & Ryan, 2018; Shome et al., 2011; Somanath, 2017; Susmitha et al., 2018).

Teachers play a vital role in determining the adoption and extent of implementation of a PBL. Teacher belief in the efficacy of PBL is as important as teacher knowledge about the method. Beliefs are outcomes of experiences and socio-cultural beliefs and are not easy to change. Teachers across the world feel that PBL projects are time consuming, not as effective for learning and classrooms are disorderly (Hasni et al., 2016) and Indian teachers are no different. As Clarke (2003) explains, Indian teacher beliefs around structural hierarchy, ie. teachers as the authority in the classroom, and qualitative hierarchy ie. teachers as more knowledgeable in the classroom are deeply embedded. Traditionally accustomed to teacher-centered, transmissive teaching, the transition to a facilitator role is difficult. Teachers report feeling challenged by the lack of control over information flows and confused about the balance between student independence and scaffolding support (Hasni et al., 2016). Many Indian teachers do not really understand PBL and conflate it with simply 'making a project' (Shome & Natrajan, 2013). Hence, the nature of projects assigned in schools do not present cognitive challenges, are not open-ended and do not address learning goals (Shome & Natrajan, 2012). Teachers often lack clear conceptual knowledge which impacts how they structure a PBL and provide scaffolding and give feedback. They lack access to resources and training. (Sriram, 2018). Teachers also find it difficult to incorporate technology as a cognitive tool, design appropriate assessments or give effective feedback (Condliffe et al., 2016; Du

& Han, 2016).

Research has shown that students also find it difficult to shift from a teacher directed, lecture & textbook, grade oriented culture to one where they are required to think cognitively, collaborate, solve problems, give and receive feedback. (Condliffe et al., 2016; Shome et. al, 2011). They find it difficult to initiate inquiry or handle the ill structured problem which is the core of a PBL (Hasni et al., 2016; Somanath et al., 2017). Students report feeling the lack of skills to cope with the new pedagogy (Hasni et al., 2016; Larmer et al., 2016).

7.3 Overcoming the challenges

These challenges have implications for PBL curriculum implementation in India. First, there has to be a concerted effort to localize curriculum development to enable situated learning. Different stakeholders like students, parents, staff, local community, environmental activists must be invited to be a part of a participatory process of curriculum development (Freire, 1996; Hartwig, 2021). An excellent example was the Hoshangabad Science Teaching Project where the curriculum was localized and based on local community realities (Bazaar, 2002). Furthermore, the curriculum content must be transdisciplinary and include components of activism (González, 2021; Sharma, 2021). Finally, curricular implementations must be documented and shared widely to share success stories and capture best practices (González, 2021).

In terms of teachers, there has to be an investment in teacher professional development. Teachers need to understand and be trained for their new role as a facilitator, coach, project manager and mentor. Furthermore, they need training on classroom management techniques especially as PBL classrooms are by nature, noisier, allowing for more movement and discussion. Teachers need to learn project management skills (Larmer et al., 2016). Teachers need training on integrating a transdisciplinary approach (González, 2021). Finally, successful personal experience

with PBL which results in a shift in teacher belief is a requisite to change teacher practice (Condliffe et al., 2016).

2016). Additionally, they need training on technology tools, time management, self management and effective group working (Kokotsaki et al., 2016). Furthermore, researchers need to understand and even deconstruct children's experience of such PBL curricula, specially the meaning-making engendered by the experiences on one hand and the way children negotiate challenges posed by a new system of teaching and learning. It is especially relevant to understand the notion of agency given the highly constrained and powerless reality Indian children confront daily. This is another area of research which must be undertaken.

8.0 Conclusion

PBL should be adopted in India as an educational approach for environmental education. PBL integrates cognitive, affective and behavioral dimensions of learning and provides avenues for child-activism. The few PBLs researched in India have shown positive results. However, PBL adoption will face challenges in the existing Indian schooling system which is based on Tylerian, behaviorist models of education. These challenges must be foregrounded and addressed. The first is that PBL curricula must be developed locally using democratic, participatory approaches with inputs from various stakeholders like the community, environmental activists, school members, parents etc. Next, there needs to be investment in teacher professional development as well as 'proof-of-concept' PBL implementations to shift teacher beliefs. Additionally concerns of students and other stakeholders like school staff and parents should be explicitly addressed to obtain their buy-in. Finally, an alternate approach like the PBL to gain mindshare, success stories must be widely shared.

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Environmental Politics: Government Policies and Strategies in Realizing Sustainable Development of Forest Conservation in Brebes Regency

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Abstract

In line with the program pioneered by the United Nations, namely the Sustainable Development Goals. In the program there are several important points that cover almostall the problems that are being experienced by most countries in the world. Therefore, that all members of the United Nations must implement it. By using field observation methods by observing forest conditions and literature studies which are also strengthened by problem formulation instruments. What is the policy of the Brebes district government in dealing with forest destruction? The data shows that the Brebes Regency Government has not been fully involved in sustainable development efforts in the environmental sector so there are still problems that must be overcome before other problems occur and are able to realize the general goals set by the central government and the local government. Lack of firmness and maximization of technology as well as the attention of the Brebes Regency Government in the process of implementing sustainable development, especially related to environmental issues, so that there are several pointswhere forest land is deforested which results in several natural disasters occurring uncontrollably.

Keywords: Deforestation, SDGs, Policy, Environmental Politics,

1.0 Introduction

The existence of humans as the highest link on earth will always have an impact onthe surrounding environment, both good and bad impacts. In this case the environmentbecomes one of the objects that feel its impact, what is meant by the environment itselfis everything that is around humans that affects human life either directly or indirectly. Meanwhile, the living environment is a unitary space with all objects and living thingsin it, including humans and their behavior which of course will affect the survival of humans and other living things. The environment includes social behavior, ecosystem, and culture. But in reality, environmental substances spread to many objects of scientific study such as pollution, waste disposal, environmental damage due to mining, forest destruction, forest fires and so on. Therefore, it is not surprising that recently environmental issues have become the main topic of national and even international discussion (Nurmadiansyah, 2015).

As stated in the *Sustainable Development Goals* by the United Nations, where there are 17 points in the goal, where all UN members are required to take part in making it happen, researchers focus on 3 points, namely *climate, ecosystems,* and environmental sustainability ((SDGs), 2021).

In the awareness of the bad impact of environmental damage, the concept of environmental politics emerged and many scientists gave a definition of environmentalpolitics. According to Herman Hidayat (2008), Environmental politics is similar to the method applied by environmentalists who analyze policies on relevant environmental issues, this is known as progressive contextualization.

2.0 Study Background

The dependent sub-district as one of the largest sub-districts in Brebes Regency also has a fairly large area of non-building land, but most of the land is used

for rice fields and only a little for forest land. In addition, the Ketanggungan sub-district is also the area most frequently affected by landslides and floods. Some flora and fauna are now increasingly rare due to diminishing habitat, poaching is also one of the causes of extinction. Most of the forest in Brebes Regency, especially in Ketanggungan Sub-district, is teak wood, which is wood that is planted with the aim of being cut down and made into processed materials to be made into a product, while for protected forests it is only in the mountains with strong customs.

In addition, Brebes Regency will become an industrial area that is offered to foreign parties to invest, even now many protected forests are starting to be eroded because they are used for the chicken farming industry which has begun to spread at various points and is also used as land for agriculture. The governor of Central Java emphasized looking for locations with low prices, not locations with the right environment to be used as industrial land (Nugraha, 2022). If this happens and there is no firm follow-up from the Brebes Regency Government, some areas will be replaced with industrial areas or forest areas which will certainly be threatened and affected if not prepared properly.

This research is important because it will involve environmental sustainability which will continue to exist if it is maintained properly, the benefits will be felt in the long term. Researchers will also examine the policies issued by the Brebes district government, regarding the strategy of nature conservation in realizing a life cycle that will last a long time and how its implementation is carried out for smoothrealization. This study will also examine the role of society or humans as the highest natural structure in implementing government policies in order to maintain the environmental cycle and avoid lurking disasters. Not only that, researchers will know the condition of the forest and its inhabitants after the policy is implemented in various forest type sectors such as protected forest, limited production forest and permanent production forest.

3.0 Research question

What is the policy of the Brebes district government in dealing with forest destruction?

4.0 Methodology

This research framework uses qualitative research methods because it will analyze the government's strategic steps regarding forests, by conducting an analysis that intends to understand or find justification for phenomena such as behavior, perceptions, or other actions by means of descriptions in the form of words in a natural context by utilizing various natural methods (Moleong, 2018). With qualitative research aims to investigate, explain, find, and describe the quality or characteristics of social influence that is impossible to explain using quantitative methods (Sugiyono, 2014)

Sources of data used in this study is secondary data. Secondary data is data that is often used instead of primary data to obtain information that cannot be obtained using primary data (Sugiyono, 2014). Secondary data sources are usually obtained from books, journals, documents or archives, and news information from the web or the internet that are relevant to the topic of research discussion (Miranti et al., 2018).

The object of this research is the policy of overcoming forest damage in Brebes Regency. This study uses a literature study data collection technique, namely a theoretical study of references and scientific literature sourced from various forms of information or news, reports or important notes related to the object of research. With various relevant sources with clear accuracy will produce mutually reinforcing information so that it can determine a conclusion as the final result.

According to Miles and Huberman, techniques in analyzing data include

several important points such as data reduction, data presentation, and conclusions or verification (Miles & Huberman, 1992). Reducing data can be said as an activity to summarize, filter the core things which then the data that has been obtained can be a determinant of the themes and patterns of a study, in this study the authors collect datarelevant to the research topic which then the data is filtered again so that it can be analyzed. used to be supporting data in research. Presentation of data can be done with a brief description, framework or chart in which the relationship between categories isintertwined which can then facilitate the understanding of a problem that occurs and can determine the next step. After all the required data is collected and analyzed, then it can be poured in the form of a description of the results in a conclusion and can be useful for the future.

5.0 Results

5.1 Environmental politics

The emergence of the issue of global warming or climate change is certainly a very important discussion to be studied. Many events exacerbate this global warming. This has prompted many experts to express their thoughts in interpreting environmental politics (*Political Ecology*). As one of the concrete actions put forward by the thinkers,as quoted from the book Political Ecology by Paul Robbins who emphasized that the study of natural resource management is part of political science because decisions in the political realm also have a major impact on nature (Robbins, 2012).

Meanwhile, Blaikie (2000) defines environmental politics as a framework for understanding the interrelated complexities of local, national, global, and ecosystem political economy. On the other hand, Bryant said that environmental politics can be interpreted as an attempt to understand political sources, conditions and become a

network of environmental change (Bryant, 1991). Recent understandings of environmental politics tend to look deeply at environmental dynamics and focus on themakeup of human systems. This is of course relevant to the current situation where there is a pessimistic feelingthat is already at a fairly worrying level among the public regarding the effectiveness of the government or state in managing natural resources and biodiversity (Febrianto et al., 2017). People's thinking has now become apathetic towards theproducts or political processes issued by the government and in the end, people have more confidence in institutions that have nothing to do with the government.

Not only public apathy towards political institutions in dealing with natural resources, depoliticization of natural resource management has now become a topic thathas been highlighted and studied by many thinkers. As Raymond Bryant's (1991) view on how to implement a sustainable development policy assumes that the government isserious about implementing it. Where with the strength and power of the government, sustainable development policies must be implemented effectively without significant obstacles.

Behind the natural wealth owned by Indonesia, it turns out to have quite risky challenges and must be answered by the government with real actions. As in the Constitution of the Republic of Indonesia which states that natural resources in Indonesia are used for the greatest prosperity of the community in a sustainable and environmentally sound manner. Article 33 paragraph (3) of the 1945 Constitution which reads; "Earth, water and the natural resources contained therein are controlled bythe state and ultimately used to be controlled by the state and used as much as possiblefor the prosperity of the people. While Article 33 paragraph (4) which reads; The national economy is organized based on economic democracy with the principles of togetherness, efficiency, justice, sustainability, environmental insight, independence, and by contributing to the balance of progress and national economic unity (Rosenbaum, 1990).

These cases certainly cause anxiety and distrust of the coherence and consistency of regulations that have been made by the Government, namely the

Constitution of the Republic of Indonesia Article 33 Paragraph 4. Meanwhile, Muhammad Akib (2014) expressed his opinion that the root of environmental damage in Indonesia is environmental law enforcement that weak. Meanwhile, according to Jimly Asshidiqie, (2006) the causes of environmental damage in Indonesia are: "Although the environment has been stated in the Law (Law Number 32 of 2009 concerning Environmental Protection and Management), but after being linked to Trade, the Industry Law, with the Cooperative Law alone, the Environment Law will definitely lose in practice".

Meanwhile, the United Nations defines deforestation as an event when forest land is cut down or cleared for conversion to other land outside the forestry sector. Deforestation can also be seen when forest quality declines, such as when species diversity and biomass decline due to unsustainable forest use. Another cause of deforestation is forest fires as an environmental disaster, the main cause of forest fires is logging activities that encourage forest fires (WALHI, 2018).

This phenomenon can be understood that forest destruction in Indonesia is caused by forest management policies that do not use sustainable principles, as well as weak law enforcement and the absence of strict sanctions against forest management violators. The problem of factors behind the rampant deforestation in Indonesia is related to forest management or forest exploitation that is wrong which shows the following correlation indicators: (1) Negligence in forest management between direct actors, for example bureaucrats from the Ministry of Forestry in both central and regional agencies, as well as local entrepreneurs and transnational. (2) These individualsdo not pay attention to the importance of human nature with the environment, and theyalso fail to integrate the system of human relations with nature (Sreekanth et al., 2014). Humans must be able to give the right reciprocity to nature so that the sustainability ofboth parties can be maintained in the long term and both benefit from this symbiosis. Therefore, it can be said that the fundamental difference between human nature and the environment is that the role of society in an environmental system will not be enough just to understand how humans have acted in the past, but about how they planned all preparations for their future (Watts, 2017).

Thus, in order for sustainable forest management to obtain good results, it must be linked to environmental politics, there are two rational reasons. First, environmental politics is an exploration of complex political-economic and environmental processes that emphasize development in the forestry sector. Second, environmental politics is concerned with the perceptions, policies, and practices that have conditioned how forests are seen, used and exploited (Bryant, 1991).

5.2 Policy

The literal understanding of policy cannot be separated from the existence of government and politics, this is because the emergence of a policy is formed by a groupof people who have a position or power under the law which of course has the aim of solving a problem. Experienced by society, which binds all citizens indiscriminately including the government. Within the scope of society, policies will certainly have an impact on life, either directly or indirectly.

"Public policy is whatever the government chooses to do or not to do". According to Dye (2005), if the government chooses to do something, there must be a purpose because public policy is the government's "action". If the government chooses not to do something, it is also a public policy with a purpose.In contrast to Anderson, there are four stages of public policy according to William Dunn (2017), namely as follows 1. Agenda Setting 2. Policy formulation 3. Policy adoption or legitimacy 4. Policy assessment or evaluation

5.3 Sustainable Development Goals (SDGs)

Wise development for society is sustainable development. Sustainable *development*is development that aims to improve the quality of life of people around the world, both

from present and future generations, without utilizing the use of natural resources that exceed the carrying capacity and carrying capacity of the earth. This goal can be achieved through four elements of sustainable development goals: (1) Economic growth and equity; (2) Social development; (3) Conservation of natural resources (environmental protection); (4) *Good governance*. These four elements support each other, creating linked and sustainable development goals ((SDGs), 2021).

In the United Nations (UN) Conference held in Rio de Janeiro (Brazil) in June 2012, a sustainable development agenda called the *Sustainable Development Goals* (SDGs) was discussed. The SDGs are a set of goals, targets, and indicators for sustainable development that are universal. The SDGs are a continuation and expansion of the *Millennium Development Goals* (MDGs) that have been carried out by countries since 2021 until the end of 2015. The SDGs consist of 17 goals and 169 targets, covering various sustainable development issues ((SDGs), 2021).

5.4 Forest Concept

Forest is an area overgrown with trees and other plants. Such areas are found over large areas of the world and serve as carbon dioxide sinks, animal habitats, hydrological current modulators, and soil preservers, and are one of the most important aspects of Earth's biosphere. Forests are life forms that are spread all over the world. We can findforests in tropical and cold climates. In the lowlands and in the mountains, on small islands and on large continents. Forest is a collection of plants and plants, especially trees or other woody plants that occupy a fairly large area.

Forest based on its function is a forest classification based on its use. This forest canbe classified into three types, including:

1.   Conservation Forest, is a forest with certain characteristics that have the main function of preserving the diversity of plants and animals and their

ecosystems. Conservation forest consists of three types, namely: nature reserve forest area andnature conservation forest area, hunting park.

2. Protected forest is a forest area that has the main function of protecting life supportsystems, regulating water systems, preventing flooding, controlling erosion, preventing intrusion. (breakthrough) seawater, and maintain soil fertility.

3. Production forest is a forest area that has the main function of producing forest products (Akib, 2014).

5.5 Forest Conditions in Brebes Regency

As one of the regencies that has an agricultural area, one of the main livelihoods in Brebes Regency is the agricultural sector. The 2017 Labor Force Survey resultsestimate that around 50% of the workforce in Brebes works in the agriculture, forestryand fishery sectors. Land in Brebes Regency based on the aspect of its designation is divided into non-agricultural (27,605 Ha), rice fields (63,321 Ha), dry land (25,657 Ha),plantations (610 Ha), forests (44,620 Ha) and water bodies (4,484 Ha). Non-agriculturalland use is used for open land/vacant land and settlements. Utilization of dry land is used for mixed gardens, shrubs/shrubs, fields/rice fields. Meanwhile, the utilization ofwater bodies consists of water, ponds/ponds, and lakes.

In the forestry sector, one of them is the Protection Forest in Brebes Regency covering an area of approximately 50,106.76 hectares in 2018 spread over several areas.The condition of the forest in Brebes Regency can also be described in terms of the distribution of land cover forest area within the forest area and outside the forest area. The area of land cover inside the forest area and outside the forest area in Brebes Regency is in 11 sub-districts, namely Banjarharjo, Bantarkawung, Bumiayu, Ketanggungan, Larangan, Losari, Paguyangan, Salem, Sirampog, Songgom and Tonjong sub-districts. The characteristics of forest areas are permanent forest areas which include Nature Reserve Areas (CA), Protection Forests (HL), Limited Production Forests (HPT), and Permanent Production Forests (HP).

In 2018 the largest forest area was in Bantarkawung District with an area of 11,559.33 Ha, then Salem Regency with a total of 9,458.90 Ha, and several other sub-districts. While the position of Ketanggungan District is in the sixth position with a forest area of 3,957.47. Whereas in 2019 there was a change where the Bantarkawung sub-district decreased to 11,041.47, and the Salem sub-district increased by 10,072.80, for dependent sub-districts it increased to 4,095.90. The number of forests in Brebes Regency was reduced to 49,115.45.

Meanwhile, in 2020 there will be very significant changes. Now Salem District is the sub-district that has the widest forest with an area that remains the same as the previous year, namely 10,072.80. Meanwhile, Bantarkawung Sub-district experienced adrastic decline to 7,893.17. On the other hand, the area of forest under dependents remains the same, namely 4,095.90. Of course, the amount of forest itself will also be affected due to the destruction of 43,950.18. To make it clearer, there is a table that will make it easier for readers to analyze the data.

Table. 1: Forest Timber Production by Production Type in Brebes Regency (m3), 2010-2020

Year/ *Year*	*Log*	**Sawn** *wood*	*Plywood*
2010	21.607,03	17,99	-
2011	25.025,60	30,35	-
2012	20.500,35	23,91	-
2013	17.308,15	9,11	-
2014	17.697,98	5,89	-
2015	16.544,24	19,25	-
2016	8.979,31	-	-
2017	15.296,88	-	-
2018	21.920,60	-	-
2019	18.571,73	-	-
2020	26.705,72	-	-

Source*:* Perum Perhutani KPH Balapulang and West Pekalongan

Table 2: Forest Area by District in Brebes Regency (ha), 2020

Subdistrict	Decision Year	Forest Area					
		Protected Forest	Reserves and Nature Conservation Areas	Limited Production Forest	Permanent Production Forest	Production Forest	Total Forest Area
Salem	…	710,92	-	8.936,26	425,62	-	10.072,80
Bantarkawung	…	184,98	-	4.355,59	3.352,60	-	7.893,17
Bumiayu	…	-	-	36.00	1.295,09	-	1.331,09
Paguyangan	…	1.465,93	-	2.205,44	285,05	-	3.956,42
Sirampog	…	1.456,07	-	2.164,56	-	-	3.620,63
Tonjong	…	-	-	-	332,14	-	332,14
Larangan	…	-	-	-	5.900,22	-	5.900,22
Ketanggungan	…	1.274,87	-	973,21	1.808,64	-	4.056,72
Banjarharjo	…	1.160,11	-	1.625,62	3.110,67	-	5.896,40
Losari	…	-	-	-	184,51	-	184,51
Tanjung	…	-	-	-	-	-	-
Kersana	…	-	-	-	-	-	-
Bulakamba	…	-	-	-	-	-	-
Wanasari	…	-	-	-	-	-	-
Songgom	…	-	-	-	706,08	-	706,08
Jatibarang	…	-	-	-	-	-	-
Brebes	…	-	-	-	-	-	-
Brebes District	**…**	**6.252,88**	**-**	**20 296,68**	**17.400,62**	**-**	**43.950,18**

Note: *Based on* the Decree of the Minister of Forestry Number 359/Menhut/11/2004 dated October 1, 2004 and SK Number 2889/KPTS/I/2013 dated October 21, 2013.
Source: *Perum* Perhutani KPH Balapulang and West Pekalongan

Where these conditions are now changing from time to time, the facts on the ground shown by community observations show that there is a change in land, especially agriculture for industrial and residential areas that continue to grow. In addition to agricultural land that has turned into built up in several places, it also shows a change in forest areas into open land. However, the area of the state forest area has remained constant in the last five years. This state forest area includes limited production forest areas, permanent production forests, protected forests, and nature reserves.

5.6 Brebes Regency Environmental Management Policy

5.6.1   Brebes Regent Regulation Number 51 of 2017 concerning Tree Protection

In the Perbup Brebes No. 51 of 2017 it is stated that the purpose of the Perbup is made in Chapter III Article 3 which describes, of course, to conserve forests and create security for the public interest, as well as to realize sustainable development which if not followed up quickly then nature can be damaged in a not long time.

To help make it happen, of course, there must be real actions taken by humans as thinking beings who can carry out directed movements. This is stated in Chapter IV Implementation of Tree Protection Part One Article 4 which contains cooperation between the community and the government to be able to carry out the implementation in a directed and structured manner, one of stated in paragraph (3) which reads that the community participates in the implementation of tree protection in the area. which is a protected area. owned or controlled by the community concerned and/or an area owned or controlled by the Regional Government.

The community itself certainly has a role in this implementation which is stated in Part Two of the Role of the Community Article 5:

a) Tree planting;

b) Tree maintenance;

c) Do not engage in activities that can damage or kill trees; or

d) Reporting to local government officials about the existence of trees that can endanger or threaten the safety of the public interest and/or actions that according to him are against the law that can cause trees to be damaged or die.

On the other hand, licensing on all matters relating to tree protection is also clearly stated in Chapters V Licensing Part One Article 6 which states that every logging activity must first go through a permit from the regent which is then delegated to the Head of the Environment. andWaste Management Services. only 1 (one) felling is allowed within a period of 14 days, so if itis not done, it will expire. However, it is different if the tree belongs to a person/private sectoror entity.

Of course, before cutting a tree, there must be a strong reason in advance so that it can be approved by the government as stated in Part Two of the Reasons for Cutting Trees Article 7 which reads as follows:

a) the presence of trees interfering with the city's utility network;

b) the presence of trees interferes with or endangers public safety/interest; or

c) in or around the tree site a building will be erected or will be used for road accesspurposes by the applicant.

5.6.2 Brebes Regency Regulation Number 5 of 2019 concerning Environmental Protection and Management

The purpose of making this regional regulation is stated in CHAPTER II Principles, Objectives and Scope of Part Two. The purpose of Article 3 is to protect regional areas from allforms of pollution and/or environmental damage, as well as to ensure safety, health, survival ofhumans and creatures. other life and also to preserve the ecosystem. This is also an effort to realize sustainable development and is a step to anticipate global issues.

In order to realize the implementation of the use of nature so that it can be sustainable withthe realization of sustainability as stated in Chapter V Control Part One Article 7 which contains control of environmental pollution and/or damage carried out in the context of preserving environmental functions, which includes prevention, control, and recovery in which the regional government is responsible for its implementation and the person in charge of businesses and or activities in accordance with their respective interests, roles and responsibilities.

While the second part of CHAPTER V contains Article 8 Prevention, where the instrumentsfor preventing pollution or environmental damage consist of:

    a)   KLHS (Strategic Environmental Studies)

    b)   Spatial;

    c)   Environmental quality standards;

    d)   Standard criteria for environmental damage;

    e)   Documents;

    f)   Licensing;

    g)   Economic instruments;

    h)   Based laws and regulations;

    i)   Budgeting;

    j)   Environmental risk analysis; and

    k)   An environmental audit.

In addition to prevention, of course, that environmental sustainability can last for a long period of time, then of course there is maintenance as stipulated in CHAPTER VI Maintenance of Article 39 which contains the following:

    1)   Caring for the environment is carried out through the following efforts:

        a.   Conservation of natural resources;

        b.   Preservation of the function of the atmosphere.

    2)   Conservation of natural resources as referred to in paragraph (1) letter a includes thefollowing activities:

        a.   Protection of natural resources;

        b.   Preservation of natural resources; and

       c.   Sustainable use of natural resources

3)   The preservation of the function of the atmosphere as referred to in paragraph (1)letter b includes:

     a.   Climate change mitigation and adaptation efforts;

     b.   Efforts to protect the ozone layer;

     c.   Tree protection. Comment [H37]: Article 55 of Law no. 32 of 2009 Comment [H38]: Article 57 of Law no. 32 of 2009 (4)

4)   The preservation of the function of the atmosphere through the protection of trees asreferred to in paragraph (3) letter b, shall be further regulated by a Regent Regulation.

6.0 Discussion

As a district that has a very wide area and also has vacant land that even exceeds the land thatis already inhabited, this will certainly invite investors to build new businesses in the Brebes areawhich of course can produce good fruit and can even damage the environment in Brebes Regency.

When viewed from statistical data related to land in Brebes Regency, every year it continues to change, whether it's a drastic change or the same every year. As stated in the regulation above, which is related to forest conservation in Brebes Regency at this time. The purpose of making thisRegional Regulation is stated in CHAPTER II Principles, Objectives, and Scope of Part Two. Thepurpose of Article 3 is to protect regional areas from all forms of pollution and/or environmental damage, as well as to ensure safety, health and human survival. and other living things and to preserve the ecosystem. This is also an effort to realize sustainable development and is a step to anticipate global issues.

Efforts to implement sustainable development carried out by the Brebes district government are still lacking. This is because it appears that the efforts or policies carried out by the Brebes Regency Government are only limited to

restrictions without any program efforts that are actually aimed at Sustainable Development which will be felt very important in the next few years. Especially because Brebes Regency is a very strategic location for investment because the area has a lot of vacant land or plantation land.

This will also pose a threat to farmers who make up the majority of workers in Brebes Regency,as well as various natural disasters such as floods or landslides, and forest fires which are still a serious problem. Therefore, the government must think of a solution that can cover all the problems that are being experienced so that it can survive in the long term and can be felt in a sustainable manner. There are also many cases of forest destruction that occurred in Brebes Regency due to illegal logging which is the main cause of all natural disasters and loss of flora and fauna habitat.

7.0 Conclusion

The steps and efforts of the Brebes Regency Government in implementing theimplementation of sustainable development can be said that there is no absolute movement related to the SDGs for the points of *Climate, Sustainability* and *Ecosystems*, of course, that is one point that cannot be underestimated. This is because it involves the sustainability of variousparties such as humans, nature, animals, and also sustainability in the future. The policies issued by the Brebes Regency Government are only limited to regulating how to prevent land or environmental damage.

With the majority of people's work in Brebes Regency coming from nature, of course it willhave a big impact on their work. The government should take this as a lesson, because the actions taken will produce both good and bad results for the future of Brebes Regency. Investors are needed to be able todevelop Brebes district, but government must also prioritize the environment and the indigenous people of Brebes district, the majority of whom depend on their daily lives from the nature.

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Improving Addition Skills Using Froggy Ruler Among Remedial Student

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Abstract

In 2020, due to the implementation of Movement Control Order (MCO), the Ministry of Education had to replace face-to-face classes with Homebased Teaching and Learning (T&L). Throughout the MCO, PdPR had to be conducted either at home, community center or at any appropriate locations in a structured and planned manner. PdPR can be implemented online, offline, or off-site. During the PdPR process, four students were found to be struggling with addition skills and writing the numbers 12 to 18. Hence, this study was conducted to determine the effectiveness of Froggy Ruler to develop students' addition skills on four students. Students were exposed to the use of Froggy Ruler in stages. The present study is based on a participatory action research approach and uses the Kemmis and McTaggart model. The participatory action research of this study was conducted in 4 phases, namely, planning, action, observation, and reflection. In the planning phase, the symptoms were identified, and the students showed the characteristics of dyslexia. The intervention was then planned to address the symptom. The four-phase action plan is part of the chosen strategies for the action phase. Data will be gathered in the observation phase using a variety of methods to gauge the effects of change and data collection involved documentation and observations using field notes. Finally, in the reflection phase, the results of the implementation of the strategies are evaluated and this cycle continues until the intended results are achieved. Descriptive analysis of the data revealed that all participants (100%) improved their addition skills. Students' exercise books that underwent document analysis revealed an improvement in these abilities. It can also be observed that questions are answered in less time when students are completing exercises. Furthermore, students are also more confident in using the Froggy Ruler in solving problems.

1.0 Introduction

The announcement of the Movement Control Order from Wednesday, March 18, to March 31, 2020, had made 2020 a very difficult year for both the education sector and Malaysian citizens. The 14 -day control order was made in accordance with the Prevention and Control of Infectious Diseases Act 1988 and the Police Act 1967. The movement control order involved a total ban on movement and public gatherings throughout the country including religious, sports, social and cultural activities. The education sector also experienced change when all educational institutions under the Ministry of Education Malaysia were closed and Homebased Teaching and Learning (PdPR) had to be implemented as an alternative to learning in the new norms (Berita Harian, 2020). Home-based teaching and learning (PdPR) refers to PdPR that takes place in a home, community center, or other appropriate settings. According to the Ministry of Education Malaysia (MOE), (2020), PdPR can be implemented in a structured and planned manner online, offline, or off-site. PdPR is implemented when a student is unable to attend school within a certain period due to disaster or epidemic or other reasons with the approval of the state registrar. Considering that face-to-face learning is vital for students, SK Seri Biram Home School Remedial Class Program (SKBHSRC) was launched on a scheduled basis.

2.0 Background of Study

Special Remedial Program (SRP) has been implemented by the Ministry of Education Malaysia (MOE) since the 1960s to help students in primary schools who face particular problems in learning, namely mastering the basic skills of reading, writing, and counting (3M). This program is conducted by a remedial teacher and in a particular space (withdrawal system) which involves the subjects of Malay Language and Mathematics. Asnorhisham & Rahim (2017) stated that differences in individuals'

interests, experiences, talents, and learning styles result in them being slower or 'backward' in mastering skills compared to their peers. If they are not given the 'necessary education,' their potential will be decreased. Syed (1997) stated that remedial children show symptoms or signs of difficulty in reading, writing, and counting.

Other than environmental problems, difficulty in reading, writing, and counting also indicate there are characteristics of learning disabilities. This characteristic refers to specific learning disorders with difficulty mastering number sense, number facts, or calculation. Examples of these difficulties include poor understanding of numbers, their magnitude, and relationships; counting on fingers to add single-digit numbers instead of recalling the math fact as peers do; getting lost during arithmetic computation and may switch procedures (American Psychiatric Association, 2022). Dyslexia is an alternative term used to refer particular pattern of difficulties.

Based on the observation, it was discovered that the students exhibit traits common to those with particular special needs, specifically dyslexia. Dyslexia symptoms are caused by deficits in the visual domain, causing impaired visual processes due to magnocellular responses (Contemori et al., 2019). Impaired magnocellular responses cause children with dyslexia to have visual instability, such as seeing flying letters and visual confusion (Stein, 2019). For example, the word 'saw' is seen as 'was,' while the word 'dog' is seen as 'god' (Stein, 2019). These visual impairments cause children with dyslexia to have problems with reading fluency and accuracy (Bakos et al., 2020).

Four students have been identified as having difficulties writing the numbers 12 to 18 and mastering addition concepts as the SKBHSRC continues as planned. These students were observed to write the numbers one through twenty very slowly and occasionally upside down. They also take longer time to write and have difficulty writing numbers in sequence. Besides, they take a longer time to solve a given problem compared to their other classmates. Due to their weak one-on-one counting abilities, these students occasionally provide the incorrect answer. When writing numbers

upside down or the other way round, these students appear to struggle with symbol confusion; for example, if the answer is 12, they might write 21, rather than 12. Therefore, a study of these students' primary issues and the development of a plan to resolve this issue should be conducted.

3.0 Research Objectives/ Research Question

To determine the effectiveness of Froggy Ruler in developing students' addition skills

4.0 Methodology

The present study is based on a participatory action research approach and uses the Kemmis and McTaggart model. Action research approach is a systematic inquiry into one's practice. Action research also can provide educators with a better understanding, and improve their educational practices (Mertler, 2017). This study was performed at Sekolah Kebangsaan X in one of the Remedial Class to four students who had difficulties writing the numbers 12 to 18 and mastering addition concepts. This study was performed with parent consent and the identity of the students were confidential.

The participatory action research of this study will be conducted in 4 phases; planning, action, observation, and reflection. In the planning phase, the symptoms are identified and the students exhibit signs of dyslexia. Following that, an intervention was planned to address the symptoms. The four-phase action plan is part of the chosen strategies for the action phase. Data will be gathered in the observation phase using various methods to gauge the effects of change. The outcomes of implementing the strategies are then assessed in the reflection phase, and this cycle is repeated until the desired results are attained.

4.1 Planning

A Froggy ruler is like a normal ruler but there are houses and flies to make it easier for students to identify the movement of the frog when the operation is added. This is because dyslexic students struggle to understand symbols, so the picture will help them remember the frog's movements. Students can avoid counting by jumping when using the Froggy Ruler because the numbers are in order.
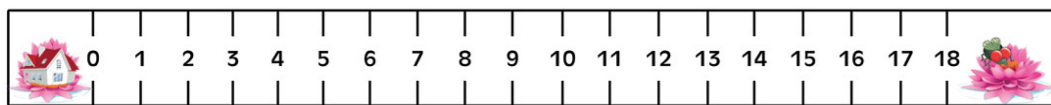
Picture 1: Froggy Ruler

4.2 Action

In the action phase, the selected strategies consist of the four-phase action plan. The first phase is counting one by one using Ting Ting, followed by the second phase which teaches students to use the Froggy ruler. In the third phase, students use the Froggy Ruler for addition of more than 1. Lastly, students will apply their knowledge of using the Froggy ruler in completing the exercises.

4.3 Observation

This phase will be conducted by collecting the data and, like the initial review, information should be collected by combining different methods to measure the results of change. The phase aims at collecting data about the impact of actions by identifying the factors that need to be modified in the intervention. Therefore, combining different quantitative and qualitative methods such as time and pupils' reactions is crucial. The student's reactions were documented by the teacher using emotional indicators for each phase and the time was recorded during the action phase. Time and emotion

assessment indicator shown as in Table 1.

Table 1:Time and Emotion Assessment

Phase	Time	Emotion Indicator
1		
2		
3		
4		

Table 4.2 shows the pre and post-tests that were given to the students before the action phase and after the action phase.

Table 2: Pre and post-test question

Question	Pre-test	Post-test
1	6+6=	8+8=
2	5+7=	9+3=
3	6+8=	8+5=
4	9+4=	6+9=
5	4+8=	7+7=
6	7+6=	8+7=

4.4 Reflection

This stage aims to assess the impact of Froggy Ruler on students' addition skills based on pre and post-test results as well as observational data. Reflection is used to reflect on program, action, and observation, while continuous reflection is used to form effective evidence for preserving the cyclical nature of action research. It is a mental process, in which situations are reexamined to gain a better understanding of the situation and this understanding helps to improve the overall process.

5.0 Results

During four weeks of the action phase, data were collected using quantitative instrumentation. Data were analyzed descriptively and the findings indicated that all

students showed improvement in addition skills and all of the four students answered all the post-test question correctly (refer Table 5.1). The pre-test was conducted in the first week before the action phase and the post-test was given in the fourth week of the action phase. Student 2 and 4 showed most positive improvement as well as can asnwer all the question fast.

Table 5.1: Pre and post-test analysis

Student	Pre-test	Post-test
1	4/6	6/6
2	3/6	6/6
3	4/6	6/6
4	3/6	6/6

Besides, documents analysis on students' exercise books also showed students' improvement in their addition skills. Data collection involved documentation and observations. Based on the observation data using time and emotion indicator assessment, it can also be seen that the time taken to complete exercises question is shorter. Students are also more confident in using the Froggy Ruler in solving problems.

6.0 Discussion

The present study aims to determine the effectiveness of Froggy Ruler to increase students addition skills. Results of analysis revealed three main findings Firstly, students make less mistakes in writing numbers. Secondly, the time taken to complete the task is decreased. Finally, students are more confident in doing the exercise. Students' mistakes in addition process caused by impaired visual processes due to magnocellular responses (Contemori et al., 2019). Impaired magnocellular responses cause children with dyslexia to have visual instability, such as seeing flying letters and visual confusion (Stein, 2019). For example, the word 'saw' is seen as 'was,' while the word 'dog' is seen as 'god' (Stein, 2019). By using Froggy Ruler the student could reassure the answer with the ruler. This is supported by visual search and visual tracking tasks (Qian Bi & Hong-yan, 2015). The tasks focused on eye movement, object localization, and visual-spatial attention, which were the function

of the magnocellular pathway (Boden & Giaschi, 2007).

Secondly, the time taken to complete the task decreased. The Froggy Ruler makes addition easier to execute and more interesting. The current visual-motor intervention involved training focusing on visual search and tracking, which might be related to oculomotor control and visual-spatial attention (Hooge and Erkelens, 1999; Kramer et al., 1999; de Brouwer et al., 2002). This makes the process easier and increases the accuracy of the answer. Thirdly the confidence level of the student increases as they complete the task making them more interested in the subject. However, the current study had some limitations. Firstly, the relatively small sample size restricted the reliability of the current training effect. Secondly, it's only focused on addition. Hence, it is suggested that local future research should attempt to focus on using the Froggy Ruler for subtraction and regrouping tasks. One of the limitation of this study was that the action done individually only in four weeks.

7.0   Conclusion

Mathematics has a range of several different competencies, such as numerical estimation, word problems, fact retrieval, and number transcoding. Standardized arithmetic tasks usually assess these different abilities simultaneously and do not tap their specificities. It is essential to investigate the distinct cognitive mechanisms that are associated with each of these mathematical skills This intervention has been used to help the remedial student is facing challenges in the classroom and supporting the student in learning mathematics.

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Gender Bias In Learning Capability: English Mastery of State Vocational High School's Students of Salatiga

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Abstract

Human are naturally divided by biological aspects called sex. The biological gender then produce a product of society known as society gender which greatly influenced and affecting how people live their social live. Gender bias is a problem which heavily consists of stygmas and stereotypes based on specific biological gender. Beside it is affecting people social, it also affecting how people learns new language for them. Moreover, language in general have gender-based characteristics such as feminine and masculine. This study tries to examine gender bias phenomenon based on research analysis with qualitative method. To understand and answer the stereotypes that is has been around society, this study tries to examine: 1. The reality of the stereotype stating male learns and master English better female; 2. The reality of the stereotype stating male are better or proficient in using English verbally than female; 3. The reality of the stereotype stating male are better or proficient in English literacy than female;. It is shown that male students have better ability to use English verbally, whereas female shown better score in terms of reading and content comprehension. Hence, Gender bias does not have meaningful effect on how people's internal aspect such as their capabilities of learning, but it does have external effect such as decreasing the urgencies and reasons for learning English.

1.0 Introduction

When we try to examine or pay specific attention to social life by looking at biological factors, indeed gender is a real aspect and is inherent in each individual.

This results in conditions that create a series of sex-based life influences. Gender differences are a reality that cannot be avoided, and everyone may views it or gives a different perception (Wibowo, 2012). The biological aspects of human life that affect their social life in society are also called gender. The concept of gender then introduced by social scientists to explain women and men who are innate as God's creations and which are cultural formations that are learned and socialized from childhood (Herien, 2013). Social gender itself is often misunderstood as gender as biological context, especially in English for the reason of lack of diction. However, the orientation of these two terms is different. Biological gender is an aspect that is purely seeing human from the biological factors attached to a particular sex. Male is a classification for humans who have a penis, have a jackal, and produce sperm, while female is a classification for humans who have a uterus, a canal for giving birth, have a vagina, and have breastfeeding organs (Soedarwo, 2010). Whereas the context social gender itself is a social functional difference where biological gender affects human life in society. In general, social gender context is the assumption attached to a particular gender along with a set of social distinctions between the two. Even so, social gender itself is a neutral position depending on the use of its meaning (Setyaningsih, 2006). The formation of gender differences undergoes a very long process and through many things, it is formed, socialized, strengthened, even socially and culturally constructed through the state and religious teachings (Afandi, 2019). In other words, social gender is a habit that is formed between the strata structure of society which is used in assessing the position between men and women to create a more egalitarian social order (Setyaningsih, 2006).

Communication is a crucial part of human social life. Thus, social gender itself also affects how society communicates between one individual or group to another. In the understanding of the science of sociolinguistics, the theory mentioned about the differences in the use of language. In general, each language in the world has a structure, vocabulary, and language characteristics which are also influenced by the gender of the speaker. Automatically, the influence of sex will align certain genders with existing social norms. It may be assumed that there is a biological basis that allows the two sexes to develop different behaviour (Barnas & Ridwan, 2019). Women are more conscientious and in tune with norms in sociolinguistics and they are more

open, whereas men are more difficult to adjust than women in language (Wibowo, 2012). When viewed from the influence of social gender on how humans interact with communication, language itself will produce structures and characteristics that may be masculine or feminine.

Characteristics and social functions created by the influence of gender cause problems in people's social life, especially in the modern era. Usually one of the biological gender parties (male or female) feels that their rights are marginalized while their obligations are the same or there is no difference between men and women, so the party who feels marginalized, which is usually women, claims that they are exposed to gender bias treatment, whether the treatment is a political policy, education, social interaction, or in terms of language expression (Setyaningsih, 2006).

2.0 Background of Study

This study is based on how gender are biased in modern society. There are studies based on gender and its biased effect conducted by researchers. Prior to this study, there is study about gender bias by Sri Isnani Setyaningsih (2015) who focused the study on the effects and causal of gender bias specifically based on language which in this study focused on English. The findings shows that there are specific words based on gender, which some of the words are discriminatory which resulting in discredit of one gender. This study focused on women welfare, taking examples of such words such as '*prostitute*' and '*abortion*' which those two words often associates with women and followed by negative context or meaning. The result and statement mentioned before are relevant to study conducted by Prasetyo (2012) which its study focused on the relevance of gender and language. In this study, it is found the fact that women are better position aware socially than men. The effect of this is women are more aware of language factor based on social class and the nature of human living being as social creature. This means that variety of language based on ethnicities and social community, at least some of it are caused by social distance. This is different from language based on gender which caused by social difference such as status. The context status can be extended to various meanings, including stigma and stereotypes.

The stigma and stereotypes being a based of language can be said as one of the causal of gender bias. It is also occured in Indonesia as stated by Tri Rina Budiwati by her discoveries in her study (2011). Based on situational context and social culture of Indonesia, variety of proverb came to existence. Unfortunately, most of proverb appeared taking from domestic of women from which Indonesian ancient culture point of view, influenced by Malay society culture, only seeing women as server of the purpose of sex, reproduction, and domestic role. Eventhough modern idiom of Indonesian appeared proverbs which seemingly tries to abandon such culture, unfortunately another culture emerge which still have imbalance characteristic. For example, on the phrase *beauty contest* idiom implied the meanings of women seen on the beauty side for the sake of men's enjoyment rather than seeing women as a whole. The beauty of women often only seeing from how women look rather than their intelligence or their well behaviour and well manners. This one-sided issue is relevant to the study about gender inequality conducted by Siti Rokhimah (2014). In this study, it is stated that in traditional society, the concept of patriarchy, which favor male, is a concept widely acceptable which never be an issue. The religion aspects believe that God already differenciate human gender by its place and role, and people should act and behave accordingly. This study also stated that biological aspect also affecting the belief for the reason of male in general is biologically stronger than female. These condition resulting in different social function, thus resulting in different social status and its following privileges.

Gender issue taking a huge part of current society, even the very language people use to communicate to each other. But does it means it affecting people as a human being, or is it just a product of long evolving reality of society. A lot of people seeking the justice as form of gender equality. The gender equality is an actual issue in Indonesia (Sari & Ismail, 2021). The reason why it is important for a lot of people is gender equality itself permits women and men equal enjoyment of human rights, socially valued goods, opportunities, resources, and the benefits from development results (Herien, 2013). Gender equality is a condition where women and men can play a role in all areas of life without being limited by stereotypes and rigid gender roles

(Sari & Ismail, 2021). One of the benefits from development of gender equality is the welfare of education not limited by gender, including language education.

The issue that will be discussed here is about gender bias. The problems of this gender bias is taken from assumptions spread in society. Gender bias behavior is one of the result of gender inequality. The various forms of gender inequality are marginalization, subordination, stereotypes, violence and double workloads (Fakih, 2008). This factor is caused by the social system and structure that places men and women in a disadvantageous position (Afandi, 2019). One of the assumption is stereotypes. Gender bias is one of society stereotypes which views that there are differences between men and women in learning and mastering a skill and not based of each individual capability. Specifically, this stereotype is an assumption stating that there is a set of skills that are generally aimed specifically at one gender. For example, men should be more proficient in mastering "masculine" skills such as in the automotive sector whereas women should be more proficient in mastering "feminine" skills such as culinary or cooking. Even among the Indonesian people, the mindset has been embedded that there are mandatory gender-based skills, for example women must be able to cook and men must be able to repair vehicles.

In addressing this stereotypes, this study attempts to examine the biased capability in mastering skills based on the assumption of gender influence. Based on short interviews with 10 women and 10 men with an age range of 17-23 years, the results shows that the majority of respondents think that men are better at learning linguistics than women, and some say that there is no correlation between learning and gender. Based on these results, the hypotheses of this study are: male learns and master English better than female (1); male are better or proficient in using English verbally than female (2); male are better or proficient in English literacy than female (3).

3.0 Research Objectives

Gender is a productive variable that can be used to find out information (Muliadi, 2020). In the field of education, government policies are in line to create gender equality which means that education is a strategic sector to fight for gender equality (Khairani, 2018). Based on prior reasons, this study will analyze both comprehension and communicating skills in English language as a medium for measuring mastery of skills that will be applied to vocational high school students (SMK) based by sex. Thus, this study aimed to achieve certain objective, such as:

   i)   To find the truth of the stereotype stating male learns and master English better female;

   ii) To find the truth of the stereotype stating male are better or proficient in using English verbally than female;

   iii) To find the truth of the stereotype stating male are better or proficient in English literacy than female;

4.0 Methodology

a. Qualitative Research Method

Qualitative research methods are more commonly used by humanities, social, and theology academics (Darmalaksana, 2020). This research tries to examine the gender bias phenomenon seen from sociological perpective, hence this study were conducted based on qualitative research method. In qualitative research, conceptualization, categorization, and description are developed on the basis of "events" obtained during field activities (Rijali, 2019).

b. Fenomenology Research Base Design

This research has a basic phenomenological research design with a focus on the phenomenon of gender bias stigma in the mastery of English language skills. The phenomenological view seeks to understand the meaning or significance of a phenomenon and its links to people who are in certain situations. Phenomenology still contains prejudices or assumptions from problematic researchers. However, the existing symptoms are not mixed with other unrelated phenomena, or intervened by other interpretations that come from culture, beliefs, or even theories in science that we have previously (Novanti, 2013). This understanding explains that there are still limitations to subjectivity in studies with phenomenological designs.

c. Data Source

This study uses qualitative research with base of literature review and field study. Hence, this study uses data collected from literature and reality found on the field. Therefore, the flow of this study is explained on illustration below.
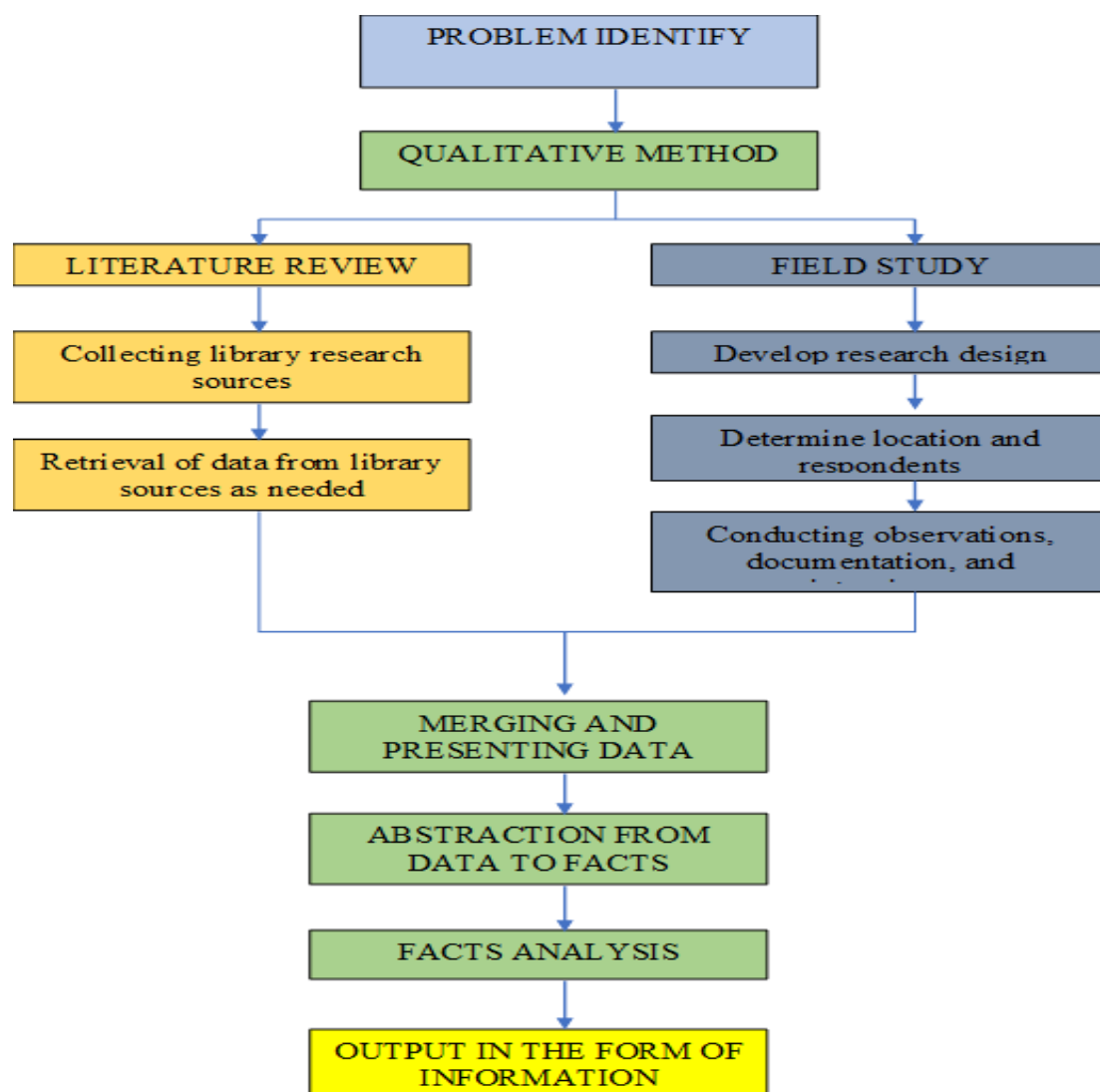
Figure 4.1: Data Gathering Flow

Literature based data were used as the supporting background of thi study whereas data from field study which consists of objects and subjects are as follows.

a) The subjects of this study were female and male students from Vocational High School of the State (Sekolah Menengah Kejuruan Negeri) 1, 2, 3 located in Salatiga City;

b) The object of this research is the need for information.

Data collection was done by interviewing resource persons. The selected resource persons are students who have been determined using purposive sampling to produce a non-probability sample. The criteria for resource persons in this study are divided into two, which is:

a. To answer the second and third hypotheses, information was taken from students in grades 10, 11, and 12 with each two females and two males. For the quality of the resource persons, the students choosen were in the top rank in English scores of their grade, which means that students selected are the top two males and females from grades 10, 11, and 12 based on their mark on specific English test, which is mid-term exam. Hence, the total of respondents are 9 male students and 9 female students.

b. Furthermore, to answer the first hypotheses, information was taken from interview with English teachers for grades 10, 11, and 12. Hence, the total of respondents are 9 English teachers.

Then the data that has been collected will be analyzed using content analysis techniques. Krippendorf argues that content analysis seeks to analyze data in certain contexts, relating to individuals or their cultural attributes (1989:403). Then in its own form according to Hayes & Krippendorff, content analysis data is usually generated or obtained by observers who record or transcribe into textual material, it can be in the form of images or sounds suitable for analysis (2007).

This study looks for data in two ways. The first method is direct interview with the informant, which is the students and the English teachers. For the duration, the researcher had to make a time contract with the participants, so that they could plan their activities for the day without being disturbed by the interview, in general, participants wanted one hour to be sufficient (Rachmawati, 2007). Hence, the interview were conducted less than one hour for each resource person. The following questions were asked to the student respondents:

1. When the first time you know or introduced about English?

2. How long have you been using it?

3. How often you use it?

4. Do you think English is hard to learn?

5. What do you think about English usage in Indonesia?

6. Do you agree that gender affecting or have particular effect on one's capability to   learn or understand English?

The following questions were asked to the English teachers respondent:

1. What gender is easier to teach about English subject?

2. What gender has more good score in English subject?

3. Do you agree that gender affecting or have particular effect on one's capability to learn or understand English?

After the interview, the second data collection was by holding a short test in the form of 10 multiple choice questions and 5 essay questions specifically for students resource person. For the multiple choice test, the test is purely about English such as language structure, grammar, and complementary sentences. Then for the essay test, the question is the same as the interview questions. The purpose of the short test is to measure the ability of the resource person directly. The test in the form of multiple choice questions is used to measure the understanding of the students in terms of reading and understanding. The test in the form of essay questions is used to measure the understanding of the resource persons in terms of writing comprehensively and thoroughly.

d. Analysis Technique

The analysis that will be carried out in this research will combine and harmonize the data found in the field with data taken from the literature review. Therefore, this study will use the concept of an inductive data analysis technique model with comparative nature. The flow is data analysis starting with data from field findings that are adjusted to data from a literature review. Qualitative research has a descriptive nature and tends to use an inductive approach analysis, so that the process and meaning based on the subject's perspective are more highlighted in this qualitative research (Fadli, 2021) The selection of this analytical technique model is based on the statement of Bryman and Burgess (2002) which explains that the inductive model data analysis is closely related to the study of social problems.

The process of analyzing research data is done by systematic which is mutually sustainable and cannot be separated or stand alone. Data collection activities obtained from the field and data analysis cannot stand alone or be separated from each other. These two aspects run simultaneously which are mutually sustainable. Data reduction is an attempt to conclude the data, then sort the data into a certain concept, category, and theme (Rijali, 2019). Data analysis as an effort to systematically search and organize notes from observations, interviews, and others to increase the researcher's understanding of the case under study and present them as findings to others (Mudahjir, 1996). To improve this understanding, the analysis needs to be continued by trying to find meaning. Then the analysis will be summarized into a unified information compiled in an article writing format. The description of the flow of the analysis process is presented in the illustration below.
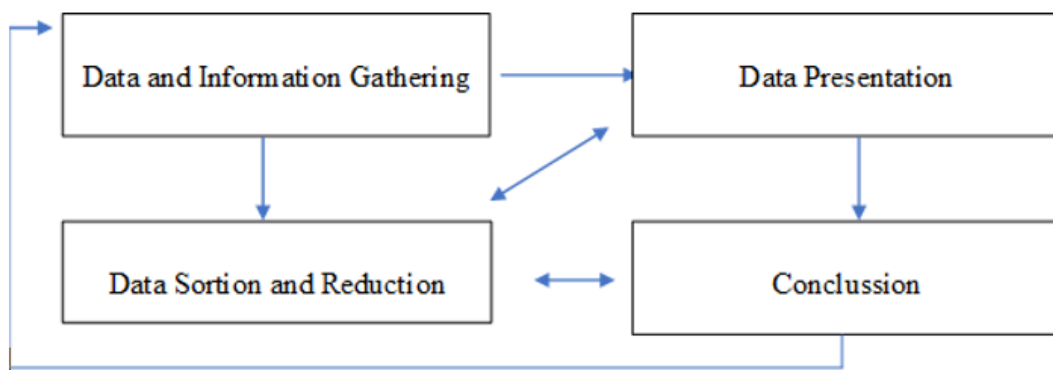

Illustration 4.2. Analysis Flow

5.0 Results

The result of this paper are taken from facts and data gathered which are combined, examined, and analyzed. Facts and data are taken from two sources which are other studies with related object of study prior of this study and real life facts which taken from interviews and observation.

A. Verbal English Ability Based on Biological Gender

The facts obtained from interview, as seen on Table 1 shows that 5 of 9 male students done the interview in English. Based on grammar and pronounciation, one student spoken English very well, four students spoken beginner English, and the rest used Indonesian language. Whereas for the female students done the interview in English are none.

Table 1: The rating of verbal english ability based on grammar and pronounciation from female and male students on interview.

Sex	Beginner	Intermediate	Advance	Indonesian	Total
Male	4	1	0	5	9
Female	0	0	0	9	9

Both sexes stated that it is very difficult to speak in English because they rarely used English in their daily communication. They did not understand how to use it properly on conversation. In this case, both of male and female resurce person stated that it was very difficult to learn English verbally. This difficulty gets even worse when they try to speak using English. The reason for this is both sexes is yet feeling comfortable when they try to talk with language they rarely use. The unconfortable feelings are described as close to being afraid to use it incorrectly or when resource persons try to use English. They feel they will sound strange or even inappropriate. Despite this condition, female resource persons are more willing to use and learn English verbally.

B. English Literacy Ability Based on Biological Gender

The facts obtained from English test with Google Forms, as seen on Table 2, shows that male students are lower average score but achive higher individual score than female, whereas female have higher average score and higher score range than male.

Table 2: The score of reading and content comprehension tested on Multiple choice english test

Sex	Lowest Score	Highest Score	Score Mode	Average Score
Male	1	9	4	2,2
Female	3	7	1	2,7

Score scale 1-10

As for writing ability based on grammar and structure aspect, as seen on Table 3, shows that both sexes are virtually the same.

Table 3: The rating of writing english ability based on grammar aspect from female and male students on essay english test.

Sex	Beginner	Intermediate	Advance	Total
Male	8	1	0	9
Female	8	1	0	9

C. Biological Gender Capability of English Mastery

Based on interview with English teacher, all of them agree that there is no difference on teaching both sexes. All of the teachers stated that the average student score from both sexes are constantly changing.

The fact according to data from research conducted which obtained after interviewing the student was that most of the students first knew English from elementary school which they mostly get basic materials such as learning numbers and letters in English. Most of students from both sex also have an interest in using English and wanted to use it proficiently, but still have difficulty understanding the material that is usually taught in school. Students from both sex also have obstacles in learning English, such as not able understanding the basic English material thoroughly. Inconsistencies of will to learn and practice and sometimes lost interest also affecting their English skill. According to the students both male and female, the upside of being able to communicate in English in their current grade does makes them looks more appealing and intelligent. The fact also states that the use of English in Indonesia is very less, especially in the environment of the resource persons who do not use English

as their daily communication. Friends at school or people around them usually use Indonesian or Javanese. English holds very little use in their daily social life, less free media to practice and partners to have conversation with. According to the resource person, the purpose of learning English is not quite important in their social life.

Learning and mastering English is only required for formal purposes such as applying for a job, teaching English specifically, or educational purposes such as foreign internship. Eventhough English does facilitate interaction with outsiders because it is an international language, the resource persons rarely meet foreigners. Some resource persons even never sees one. Facts obtained from interviews mostly stated that there was no meaningful influence of gender shown in learning and using a new language. The capability of mastering English is in accordance with the desire to learn from each individual from which differentiate one with another. However, in terms specifically English, according to most resource persons from both sexes, women are better at learning and using English. The reason of this is because women are more diligent and have better understanding capability to understand the material given at school. Women are also more interested in learning English than men. But, facts from the results of short tests that have been carried out by the resource persons shown that male correspondents have better comprehensive knowledge than women correspondents in reading in foreign language based on the short test score.

6.0 Discussion

The capability of learning is how capable individual to learn certain thing or skill. But some literature view learning capabilities as the result of learning. In general, learning is conducted by the role of teacher and student with the teacher teach their material or expertise to the student. The processes and the problem occured within itself is not concluded as one's capabilities, but rather what they learn in the processes as the output or result. Robert Mills Gagne stated that the study or learning is a complex activity (Sutomo, 2017). Then after the learning processes, the learner will receive capabilities such as skill according to what they learnt, knowledge, behaviour, and value which affected by stimulation by learning environment and cognitive

processes done by the learner (Gagne, 1985). Study or learning itself is a series of processes which is internal for each learner as an individual as a result of the transformation of stimuli originating from external events in the environment of the individual concerned (Sutomo, 2017).

Based on that statement, gender bias is a external stimuli in term of language learning process. Data shown that in current state, gender bias does not affecting individuals from both sexes to learn and mastering English. Rather, it is back to each individuals' will that greatly affecting the capabilities of English language. But, biological gender does have effect on individuals' process of learning. The reason is male in general is biologically stronger than female (Herien, 2013). This conditions render women weaker than men in terms of physical power. In contrast with this, women do have better sense of their position socially rather than men (Wibowo, 2012). The effect of this is women are more aware of language factor based on social class and the nature of human living being as social creature. Thus means that women are suppose to have better speaker and learn faster than men in term of linguistic skill.

Data shows that male students are more confident using English verbally. By the amount of male students done interview with English compare to female students, it can be inferred that male students have more active English speaker than female students. In contrast with this condition, female students shows higher average score than male students. Hence, female students are virtually better in reading and comprehension ability. Considering in this study there is one male student that scored high in multiple choice test, the average score of male students could be even lower. As for writting ability, both sexes shown no meaningful difference.

By considering of the education receive by male and female resource persons, there is no difference when it comes to education provided. Both gender introduced to English mostly from elementary school. This indicate that both gender receive equal education, including the English language. This condition goes according to gender equality which itself permits women and men equal enjoyment of human rights, socially valued goods, opportunities, resources, and the benefits from development results (Herien, 2013). Both of the gender does have troubled on learning English.

This means that capabilities of learning English does come back to each individual. This finding goes in line with Sutomo's study which stated that the capabilities are based on individual or learner. Even though, Sutomo mentioned in his literature that the processes of study affected by external aspects. One of the external aspects may be gender bias which related to womens domesticated culture. It may resulting in lower of motivation and decrease in willing to learn English in the first time for women because lack of urgencies. Perhaps this is the reasons female resource persons have less understanding but higher will for English language rather than male resource persons. When associated with Prasetyo's study, women tend to be better at using English literacy based on the usage. Based on this, when associated with Gagne's statement about learning capabilities, it can be inferred that stereotype of men capability to learn and master English better are proven untrue.

7.0 Conclusion

The difference of biological gender is an unchangeable reality. When it comes to society, it does comes with series of responsibilities and privileges. The problem of gender bias is the product of biological gender-based society role which indeed affecting how people's live their social life. The gender bias is also affecting language from which it is differs how people communicate. The 'gendered' language is real and it exist on most of language, including English. Gender aspects is also affecting how people learn and their capabilities of language as shown in this study. Affected by cultural and social stygma, it makes the bias and its effect stronger. But in contrast of this condition, the gender equality does decrease the effect of gender bias so everyone are able to receive education and learn English the same one with another. As the gender bias stereotype stating male are better at using and mastering English proven untrue, English learning capabilities finally comes back to each individual.

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Validating Fear of Missing Out Scale on Undergraduate Students using Rasch Analysis

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Abstract

Validity and reliability are two aspects of an instrument that determines the accuracy and consistency of an instrument in measuring a variable. Validity measures the extent to which an instrument measures a variable accurately, whereas reliability measures the extent to which an instrument is consistent in measuring a variable. An instrument should be tested for reliability and validity if it is used in a specific context. The current study is conducted to validate the Fear of Missing Out Scale developed by Przybylski, Murayama, DeHann and Gladwell in 2013. This was necessary as there are limited number of studies testing the validity of FOMO scale among the Malaysian undergraduate context. Besides most of the research conducted has only focused on measuring the reliability and have disregarded the validity aspect. Hence, a total of 30 undergraduates have been recruited in the current study to measure the psychometric properties through Rasch analysis. The original version had 10 items measured and upon the analysis, 9 items were finalized. The analysis consisted of test for Item Fit, Principal Component Analysis, Local Dependence Test and Summary Statistics for item and respondents. The results obtained from all the test, met all the requirements and conditions for a valid and reliable instrument resulting in item reliability of 0.68 and person reliability of 0.89.

Keywords: Fear of Missing Out Scale, reliability, validity, undergraduates.

1.0 Introduction

Fear of missing out is a relatively new phenomenon referred to as a persistent worry that others in a social circle might be having more pleasant experiences than oneself (Przybylski et al., 2013). It is characterized by the desire to stay connected and updated with one's desired social circle. Fear of missing out ranges from being an episodic feeling to a long-term disposition or state of mind which leads to more severe sense of social inferiority (Zaslove, 2015). Abel and colleagues (2016) defined fear of missing out as a constant desire to be online in social media. However, fear of missing out is not constrained to social media alone and applies to a broader context pertaining social circle (Ang, Chong, Lau, 2019). Resulting from a lack of relatedness with social circle, it is specifically more challenging for undergraduates. This is because, they have to deal with both the change in environment and academic workloads simultaneously while forming new social ties (Ang, Chong & Lau, 2019).

Upreti and Musalay (2017) reported that 70% of undergraduates in developing countries experience "scary, frenzied or frantic feeling that something is happening around them and that they are not a part of it". Fear of missing out is a new phenomenon in the field of research. However, research has highlighted that the high fear of missing out influences' individual wellbeing (Konrath, 2018) and causes attention distraction and learning disengagement among university students (Al-Furaih & Al-Awidi, 2021). This phenomenon has shown a rise, specifically during the forced isolation due to the Covid-19 pandemic (Gioia et al., 2021). As the entire world went into social isolation, establishments of new norms have brought upon a rise in fear of missing out. The statistics and issues concerning fear of missing out indicate the importance of a valid instrument in measuring the phenomenon.

Reliability and validity are two fundamental aspects in the evaluation of an instrument as an effective tool in research (Geirdal et al., 2021). It ensures that the instrument is accurate in measuring what it is supposed to measure and is consistent regardless of the population or context it is used in (Dewi & Lestari, 2020). Besides, it ensures that the data collected is sound and the results are accurate (Singh, 2014). It

is an important criterion to assure the integrity and quality of instrument (Brands, Dixit, Van Oort, 2020). Together, reliability and validity increase transparency, and reduces the possibilities of biasness and error (Singh, 2014). In this study reliability and validity of the instrument will be identified through Rasch analysis. Rasch analysis benefits a study by providing generalizability across samples and items. Besides it allows for testing of unidimensionality and identifies poor items (Boone, 2016). Therefore, in this study, a pilot test is conducted to identify the psychometric properties of the Fear of Missing Out scale among UTM undergraduates.

2.0 Literature Review

According to social scientist, fear of missing out is ingrained into human survival instinct making it an aspect that is difficult to reduce (Doster, Cornelissen, Reutskaja & Valenzuela, 2013). In this technologically intervened era, individuals are exposed to a wide range of information on what one's social circle are up to, this comes with a continuous uncertainty and inadequacy (Baker, Krieger & LeRoy, 2016). Fear of missing out being a common phenomenon is caused by an interaction between various factors. Reyes and colleagues (2018) proposed two factors, mobile revolution and the rapid development of social medias. Other factors that lead to fear of missing out will be quality of relationship (Bloemen & Coninck, 2020) and personal factors such as need for recognition and impression management (Alutaybi et al, 2019).

As fear of missing out brings upon a wide range of negative consequences to individuals (Konrath, 2018; Ang, Chong & Lau, 2019; Al-Furaih & Al-Awidi, 2021), there is a need for a sound psychometric instrument to measure the severity of the phenomenon. It is to be noted that, there is a shortcoming of tools in measuring fear of missing out. Currently, the frequently used instrument in measuring fear of missing out is the Fear of Missing Out Scale (FOMOs) developed by Przybylski, Murayama, DeHann and Gladwell in 2013. The instrument measures fear of missing out in terms from 10 items to assess an individual's fears, worries and anxieties associated with being left out of events and experiences occurring in their social environment.

The scale has been used in the field of research pertaining to fear of missing out for instance by Browne, Aruguete, McCutcheon and Medina, (2018) on social and emotional correlates of fear of missing out. Besides, it is often used in the study of fear of missing out in relationship to other variables such as phubbing (Franchina et al., 2018), depression and mindfulness (Baker, Krieger & LeRoy, 2016), self-presentation and online social anxiety (Duan, He & Tang, 2020). On the other hand, some researchers have been conducting study on validating the instrument in regard to psychometric properties. The aspects of psychometric properties that has been tested are mainly reliability. Some studies and the reported reliabilities are provided in Table 1 below.

Table 1: Reliability of FOMOs reported in previous study

Author(s)	Reliability	Focus
Perrone (2016)	0.93	Target Group: Adolescents
Salim, Rahardjo, Tanaya & Qurani (2017)	0.79	Target Group: 17 – 30 years old Individuals
Alizamar (2019)	0.93 0.90 0.88	Target Group: Students from Big Town Students from Small Town Students from Village
Dempsey, O'Brien, Tiamiyu & Elhai (2019)	0.87	Target Group: College Students
Rogers & Barber (2019)	0.90	Target Group: University Students

Although past studies have been conducted to validate FOMO scale, it is to be noted that there is a need for the current study due to a few reasons. Primarily, there are limited number of studies testing the validity of FOMO scale among the Malaysian undergraduate context. Being a new phenomenon, most studies were conducted in abroad countries (Perrone, 2016; Alizamer, 2021; Rogers & Baker; 2019). Besides most of the research conducted has only focused on measuring the reliability of the instrument and have disregarded the validity aspect (Salim, Rahardjo, Tanaya & Qurani, 2017; Dempsey, O'Brien, Tiamiyu & Elhai, 2019). Moreover, in the current study the instrument will be validated through Rasch analysis for a comprehensive result on psychometric properties. Hence, it is important for the current study to be conducted to validate the Fear of Missing Out Scale among undergraduate contexts.

3.0 Research Method

In the current study, 30 undergraduates were randomly selected from Faculty of Social Science and Humanities, Universiti Teknologi Malaysia. Out of the 30 respondents, 23 (76%) were female while the remaining 7 (24%) were male. This study has no ethical issues as informed consent have been obtained from each participant recruited. The instrument tested was Fear of Missing Out scale developed by Przybylski, Murayama, DeHann and Gladwell in 2013. The scale consists of ten items to assess an individual's fears, worries and anxieties associated with being left out of events and experiences occurring in their social environment (Przybylski et al., 2013). The 10 items of the scale are shown in Table 3.3 below. These items are to be answered in a 5-point Likert scale: 1- "Not at all true of me", 2- "Slightly true of me", 3- "Moderately true of me", 4- "Very true of me", 5- "Extremely true of me". Scores of the scale are measured in ordinal by adding up the scores of all ten items in the scale. The score ranges from 10 to 50, with a higher score in the scale indicates a higher level of fear of missing out. The instrument was tested for its psychometric properties, specifically reliability and validity. To analyse, the Rasch analysis was conducted through the WINSTEP software. The data were analysed for several test such as Item Fit, Principal Component Analysis, Local Dependence Test and Summary Statistics for item and respondents.

4.0 Result and Discussion

The instrument FOMO scale was analysed for its psychometric properties, specifically reliability and validity through Rasch Analysis. The instrument consisting of 10 items answered on a Likert-scale was analysed twice through Iteration 1 and 2. In the subtopics below, results of each Iteration is discussed in three parts, items fit analysis, summary statistics of reliability and unidimensionality. It is then followed by a summary on the results of Rasch analysis on FOMO scale.

Iteration 1 of FOMO Scale

Table 2 below shows the Rasch analysis of FOMO scale. All ten items have a positive PMC value. However, Item 8 have a MNSQ value of more than 1.5 and a ZSTD of more than 2. As it did not meet the criteria, this item will be deleted.

Table 2: Item Fit Analysis of First Iteration

Entry Number	Total Score	Total Count	Measure	Model S.E.	Infit MNSQ	Infit ZSTD	Outfit MNSQ	Outfit ZSTD	Pt-Measure CORR.	Pt-Measure EXP.	Exact OBS%	Match EXP%	Item
1	91	30	.24	.21	1.24	.9	1.22	.8	.72	.74	35.7	39.9	FOMO_1
2	90	30	.29	.21	1.08	.4	1.09	.4	.73	.74	39.3	39.3	FOMO_2
3	90	30	.29	.21	1.10	.5	1.07	.3	.71	.74	35.7	39.3	FOMO_3
4	86	30	.47	.21	.64	-1.5	.71	-1.0	.80	.75	28.6	39.6	FOMO_4
5	112	30	-.70	.22	.65	-1.4	.92	-.2	.66	.64	50.0	45.7	FOMO_5
6	107	30	-.46	.21	1.18	.7	1.04	.2	.65	.67	39.3	44.0	FOMO_6
7	105	30	-.37	.21	.77	-.8	.78	-.8	.72	.68	50.0	42.9	FOMO_7
8	89	30	.33	.21	1.65	2.2	1.62	2.0	.65	.74	28.6	38.5	FOMO_8
9	97	30	-.02	.21	.91	-.3	.86	-.4	.71	.71	57.1	38.0	FOMO_9
10	98	30	-.06	.21	.70	-1.2	.66	-1.3	.77	.71	42.9	38.0	FOMO_10
MEAN	96.5	30.0	.00	.21	.99	-.1	1.00	.0			40.7	40.5	
S.D.	8.4	.0	.37	.00	.31	1.1	.27	.9			8.9	2.6	

Iteration 2 of FOMO Scale

During the second iteration, the FOMO scale was tested for item fit analysis, unidimensionality, local dependency, and reliabilities. Table 3, shows the item fit analysis result. All items have a positive PMC value, values for MNSQ are between 0.5 and 1.5, and values of ZSTD are between -2 and 2.

Table 3: Item Fit Analysis of Second Iteration

Entry Number	Total Score	Total Count	Measure	Model S.E.	Infit MNSQ	Infit ZSTD	Outfit MNSQ	Outfit ZSTD	Pt-Measure CORR.	Pt-Measure EXP.	Exact OBS%	Match EXP%	Item
1	91	30	.24	.21	1.24	.9	1.22	.8	.72	.74	35.7	39.9	FOMO_1
2	90	30	.29	.21	1.08	.4	1.09	.4	.73	.74	39.3	39.3	FOMO_2
3	90	30	.29	.21	1.10	.5	1.07	.3	.71	.74	35.7	39.3	FOMO_3
4	86	30	.47	.21	.64	-1.5	.71	-1.0	.80	.75	28.6	39.6	FOMO_4
5	112	30	-.70	.22	.65	-1.4	.92	-.2	.66	.64	50.0	45.7	FOMO_5
6	107	30	-.46	.21	1.18	.7	1.04	.2	.65	.67	39.3	44.0	FOMO_6
7	105	30	-.37	.21	.77	-.8	.78	-.8	.72	.68	50.0	42.9	FOMO_7
9	97	30	-.02	.21	.91	-.3	.86	-.4	.71	.71	57.1	38.0	FOMO_9
10	98	30	-.06	.21	.70	-1.2	.66	-1.3	.77	.71	42.9	38.0	FOMO_10
MEAN	97.3	30.0	-.04	.21	.92	-.3	.93	-.2			42.1	40.7	
S.D.	8.5	.0	.38	.00	.22	.9	.18	.7			8.4	2.6	

The Table 4 shows the unidimensionality result obtained for FOMO scale. The raw variance explained by measure is 57.3% and is slightly higher than modelled value of 57%. As it is higher than the requirement of >40%, this value meets the criteria indicating that the instrument is accurate in measuring FOMO. As for the local dependency test, as shown in Table 5, all items have a value of less 0.7 signifying the items are not similar to one another. Hence, no further changes are required.

Table 4: Principal Component Analysis

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

			Empirical		Modelled
Total raw variances in observation	=	21.1	100.0%		100.0 %
Raw variance explained by measures	=	12.1	57.3 %		57.0 %
Raw variance explained by persons	=	6.0	28.7 %		28.5 %
Raw Variance explained by items	=	6.0	28.6 %		28.5 %
Raw unexplained variance (total)	=	9.0	42.7 %	100.0 %	43.0 %

Table 5: Local Dependence Test Result

Correlation	Entry Number	Item	Entry Number	Item
.50	1	FOMO_1	2	FOMO_2
.33	5	FOMO_5	9	FOMO_9
-.49	1	FOMO_1	9	FOMO_9
-.47	2	FOMO_2	6	FOMO_6
-.40	1	FOMO_1	7	FOMO_7
-.39	2	FOMO_2	10	FOMO_10
-.34	2	FOMO_2	4	FOMO_4
-.34	1	FOMO_1	5	FOMO_5
-.32	3	FOMO_3	10	FOMO_10
-.30	1	FOMO_1	10	FOMO_10

The summary of reliability is shown in Table 6 and 7 below. Rasch Analysis of FOMO scale showed that the instrument has a Cronbach's alpha of 0.96 which is an excellent value. Besides, the item reliability of the instrument is 0.68. This indicates fair reliability. As for the item separation, the result showed that the item separation value is 1.47. Hence, there is a poor chance for the instrument to categories items based on difficulty level. In terms of person reliability, the value obtained, 0.89 indicates a good reliability. The person separation value of 2.82 is considered fair separation of respondents in terms of ability level.

Table 6: Summary Statistics for Respondents

	Total Score	Count	Measure	Model Error	Infit		Outfit	
					MNSQ	ZSTD	MNSQ	ZSTD
Mean	30.9	10.0	.09	.37	.99	-.1	1.00	-.1
S.D.	9.8	.0	1.12	.07	.53	1.2	.50	1.2
Max.	46.0	10.0	2.21	.56	2.04	1.9	1.96	2.0
Min.	16.0	10.0	-1.62	.30	.20	-2.7	.17	-2.8
Real RMSE .41		True SD 1.04			Separation 2.55		Person Reliability .87	
Model RMSE .37		True SD 1.05			Separation 2.82		Person Reliability .89	
S.E. of Person Mean = .22								

Maximum Extreme Score: 2 Person
Cronbach Alpha (KR-20) Person Raw Score "Test" Reliability = .96

Table 7: Summary Statistics for Items.

	Total Score	Count	Measure	Model Error	Infit		Outfit	
					MNSQ	ZSTD	MNSQ	ZSTD
Mean	97.3	30.0	-.04	.21	.92	-.3	.93	-.2
S.D.	8.5	.0	.38	.00	.22	.9	.18	.7
Max.	112.0	30.0	.47	.22	1.24	.9	1.22	.8
Min.	86.0	30.0	-.70	.21	.64	-1.5	.66	-1.3
Real RMSE .22		True SD .31			Separation 1.40		Item Reliability .66	
Model RMSE .21		True SD .31			Separation 1.47		Item Reliability .68	
S.E. of Item Mean = .13								

Deleted: 1 Item

Summary of Rasch Analysis Result of FOMO Scale

Upon completion of the two iterations, item and person fit has been achieved. The final instrument of FOMO Scale has 9 items with psychometric properties as shown in Table 8 below.

Table 8: Summary of Rasch analysis on FOMO scale

Measure	Result
Point Measure Correlation (PMC)	0.65 < PMC < 0.80
MNSQ	0.64 < MNSQ < 1.24
Z-STD	-1.5 < Z-STD < 0.9
Item Reliability	0.68
Item Separation	1.47
Cronbach's Alpha	0.96
Person Reliability	0.89
Person Separation	2.82
Value of Raw Variance Explained by Measure	57.3 %
Local Dependency Test	< 0.70
Item Deleted	1

5.0 Conclusion

In a conclusion, despite being a relatively new phenomena, fear of missing out has been found to have a range of negative consequences to an individual's life. This study was conducted as there were some limitations to be addressed such as, lack of validation among Malaysian undergraduate context and lack of findings on validity of the instrument. In this study, the psychometric properties of Fear of Missing Out scale among UTM undergraduates has been analysed through Rasch Model. The analysis indicated that there was 1 item which was misfit and suggested for deletion of the item. Upon deletion of the misfitting item, the Rasch analysis showed a good reliability and validity for the remaining nine items form the Fear of Missing Out scale. The analysis showed an item reliability of 0.68 and a person reliability of 0.89.

This study has demonstrated the benefits of conducting Rasch analysis in establishing the psychometric properties of an instrument to a desired population. The overall findings of this analysis are partly in line with the psychometric analysis conducted on Fear of Missing Out scale from other countries. It is to be noted that, the Rasch analysis of Fear of Missing Out scale obtained from this study is based on a small sample of data containing only 30 undergraduates from UTM, Skudai. These might affect the power of test results and the generalizability of the result to a larger population. Besides, the deletion of misfit item, should be considered as tentative and not definitive. As a rule of thumb, item deletion or reduction should not be based on statistical criteria (Hagquist & Hellstrom, 2014).

Nevertheless, the results provide a ground for understanding on the psychometric soundness of Fear of Missing Out scale for the undergraduates in UTM. Hence, this study is an essential step to establish the validity and reliability of the instrument before conducting a study on measuring the variable. Furthermore, it provides insight on further improvement for the Fear of Missing Out scale. As the instrument was developed to measure the experience of fear of missing out among individuals based on real life experiences, future research conducted on this area of research could use the instrument for a valid and reliable data collection.

Acknowledgement

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Being Muslim Women, Indonesian, and Globalized (Muslimah Dressing Among Women In Semarang)

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Abstract

Muslimah dressing among muslim women today is not merely an expression of religiosity of a person, it also has a symbolic meaning, especially pertaining to the negotiation between Islam, Indonesia and globalization. It is related to the dynamics of knowledge on fashion as well as the ways they select their preferences in dressing. Based on these concepts, this paper covers three issues: (i) what are the considerations of muslim women in dressing; (ii) what are the reasons for the considerations; and (iii) what are the impact of the consideration on the women and external side of the women. With the focus on women's groups *pengajian[1]* in Semarang as well as by applying a qualitative approach with the perspective of postmodernism this research considered five women's group of *pengajian* in Semarang municipality Central Java Province Indonesia with ten informants from the five women's group *pengajian*. The finding showed that that women see Islam as the main source of their decision in selecting their fashion. There are processes in making fashion choices among Muslim women; and there are some impacts on the women life and external condition caused by the consideration.

Key Words: Muslim women, muslimah dressing, *pengajian*, Indonesia, globalized

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1.0 Introduction

Muslim clothing is clothing that is currently commonly found on various occasions. On formal, informal, and casual occasions, Muslim clothing appears and is worn by Muslim women. Muslim clothing for formal, informal and casual occasions is shown in a form that is appropriate to the occasion, but the principle is that the clothing fills the corridor of dress according to Islamic teachings. The texts that are used as references in Muslim dress are Surah Annur: 31 and Al-Ahzab: 59, which relate to the recommendation of Muslim women to cover their *aurot,* parts of women body that must be covered by clothings. The development of Muslim clothing occurs because of the rampant developments in the fashion world so that it has an impact on the development of Muslim clothing (Tarlo, 2010a). The development of Muslim clothing is increasingly stimulated by the development of the media. This media then disseminates these fashions, both in various modes and in their use.

The study of Muslim clothing has a very broad scope. There are at least three trends in the study of Muslim clothing, namely the study of the differences in the reasons why women wear Muslim clothing or not (Khurshid, 2019; Rinaldo, 2011; Saeed, 2017; Siraj, 2011), the practice of Muslim clothing (Harkness, 2018; Hoodfar, 2001; Shirazi, 2010) and the relationship between Muslim clothing and business developments related to clothing (Ara, 2021; Dehyadegari, S., Esfahani, A. M., Kordnaiej, A., & Ahmadi, 2016)

This study complements the diversity of existing studies, namely by looking at what are the considerations for Indonesian Muslim women in dressing, the reasons of their considerations and what are the implications of these considerations. These questions are important to understand the colourful style of muslim women dressing in Indonesia. The phenomena of clothing is important in the study of life style. The context in which this study implemented is women's group *pengajian*. This context is very interesting for studying fashion because *pengajian* in one side this groups is the forum for studying Islam but the women within it are also considered their fashion

The assumption of this study are that in wearing Muslim women's clothing there are some considerations taken by muslim women. These considerations are taken because of certain rationale. These rationale are related to religious values, knowledge on clothing and media information. These considerations also have an impact on both the Muslim women themselves and the external condition of the women, as life style and economics.

2.0 Literature Review

2.1. Muslim Women

Muslim women referred to a community of women who are Muslim, attached to the religion of Islam (Lazreg, 2009). Muslim women here was identified as having specific identities, for example their clothings. Muslim women are widely studied in relation to the assumption that they are a subordinated group in terms of their values (El-Solh, 2020). What is the meaning of value here is the assumption that Islamic value subordinated women. Some studies showed the phenomenon of the subordination but some rejected it.

Therefore, studies on Muslim women have a tendency to study negotiations about the negative image of women with Western values (Karaman, 2020; Ryan, 2011; Yeste, Carme Garcia;Ouarda El Miri Zeguari , Pilar Álvarez, 2020). As the study of Karaman and Christian for example showed that how image on muslim women with all the muslim identities always be oriented toward religious or class discrimination before Western values. The diversity of the dynamics of muslim women's struggles in various regions of the world (Metcalf, 2019; Sadeghi, 2018), as well as women's efforts to enter politics and power (Wadia, 2017; Zine, 2002).

2.2. Globalization

Globalization referred to the discussion of the discourse on global practices and local practices(Beck, 2018). Therefore, globalization is a process with a dialogue between the global with local levels. Discussing on globalization cannot be separated to the study on media because dissemination of information was done by media (Cunningham, 2016). The Advances in information media make it possible for all events in all corners of the world to be known by all the people of the world who access the media at the same time. In such a context, experts say that due to globalization, the world has now become a global village (Beck, 2018)

The study of globalization has much to do with various dynamics in various aspects, such as the economy (Tuan, 2020), education (Spring, 2008), conflicting values (Rinaldo, 2011), and so on. This dynamic arises because of the contact of various values originating from various parts of the world, which by the ease of access to information and communication makes the contact of these values increasingly swift (Roland Robertson, 2007).This makes the phenomenon of globalization increasingly a point of attention for researchers in various disciplines

2.3. Muslim Women Dressing

Emma Tarlo (2010) identified that Muslim clothing cannot be separated from the expression of identity and belief which in recent decades has become increasingly symptomatic in various parts of the world. Therefore, the study of Muslim clothing is increasingly getting the attention of experts. The focus of the study of experts related to Muslim clothing can at least be categorized into three tendencies (Tarlo, 2010b). The first trend is the study of the differences in the reasons why women wear Muslim clothing or not (Khurshid, 2019; Rinaldo, 2011; Saeed, 2017; Siraj, 2011). The study of Siraj (2011) for example showed how the meaning of modesty in wearing hijab become important consideration. Grine, & Saeed (2017) questioned about hijab, is it a fashion or religious statement. Khurshid, & Shah (2019) claimed the modernity in the hijab fashion, and Rinaldo (2011) related the muslim fashion to moral vision.

The second trend is the studies focused on the practices of Muslim clothing (Harkness, 2018; Mohamad, 2021; Shirazi, 2010). The study of Harkness (2019) focused on hijab micropractice that meant how women in Qatar wore hijab in different occasions. Mohamad, S. M. (2021) studied the background of women wearing hijab. Shirazi, & Mishra (2010) study found that muslim clothings as the expression of resistance. And the third trend is the studies focussed on the relationship between Muslim clothing and business developments related to clothing, (Ara, 2021; Dehyadegari, S., Esfahani, A. M., Kordnaiej, A., & Ahmadi, 2016). Dehyadegari et. al. (2016) studied among Iranian women related to religiosity, subjective norm, Islamic veil involvement and purchase intention of veil clothing. Hassan & Ara (2021) studied the perspectives of retailers in seeing hijab fashion. Muslim fashion retailers understand the needs of Muslim women. Muslim clothing is not only clothing that covers the genitals, but is required to appear fashionable and according to the needs of Muslim women's activities. This knowledge is very important for Muslim fashion retailers in the context of their business.

3.0 Methodology

This is a qualitative research and field research with the focus on *pengajian* in Semarang, the capital of Central Java Province. *Pengajian* is an Islamic study group that is easily found in Semarang. There are five *pengajian* located in the mosques within five public housing complex in the sub urban areas of Semarang that become the locus of this study. The reasons of taking these *pengajian* as the locus of study because of the variability in the members of the *pengajian.* The five *pengajian* that are choosen in this study are *pengajian* which all the members are women.

There are ten informants involved in this research. Heads of *pengajian* become the key informants. The informants interviewed in this research were decided based on the consideration of key informants. The decisions on who will become informants were based on the qualifications stated by researcher by considering the representativeness of the community researched. Because the focus of this research is

clothing or fashion so the informants selected are those who are having sense of clothing both in their knowledge and expression.

The data in this research was collected using a combination of methods - observation, interviews (including in-depth interviews) and participatory observation. Observation was used to catch the dressing style among the members of *pengajian* in Semarang. Interviews were conducted by an interview guide to get the data pertaining to viewpoints related to dressing behavior among Muslim women. In-depth interviews were combined with participatory observations, were executed in case it was needed any deep information, usually it is related to values, and value-based perspectives. Spradley (2006) stated that the combination of interviews and deep observation oftenly become the most effective technique to understand the perspective of both community and person (Spradley, 2006).

The analyses of the data in this study is by applying simultaneous interpretation approach. In the study of material aspects, the interpretation is related to any context, the patterns of similarity and distinction, with the interpretation of relevant social and cultural theories (Rosenthal, 2018). The processes of analysis went on continually during the time of data collection as well as after data collection. Substantially the data was analysed by the postmodernism perspective. This perspective stated that media now became the main decision maker for the forming of life style, included clothing.

4.0 Results

4. a. Women consideration in dressing.

The ten informants in this study stated that the reason for wearing Muslim clothes was because they followed religious advice to cover most of their bodies. However, there are several other opinions from the informants regarding their considerations wearing Muslim dressing.

Table 1: Consideration of wearing Muslim dressing

Informants	Other Considerations
R1, R2, R3	As Indonesian, tradition
R4, R5, R6, R7	Work, social activities, good looking,
R8, R9, R10	Organization, social relations, beauty, modern

Source: Primary data

Based on the data above, it appears that Muslim women have several considerations in wearing Muslim clothing. The main consideration is because of religious values. However, they consider Indonesian context, traditions, work, daily activities, organization, social relation, beauty and modern aspect.

4. b. The reasons for the considerations

Some informants stated that the main reason for wearing Muslim clothes is because they are muslims. Apart from wearing clothes because of Islamic teachings, they also considered several things. For example, R1 and R2 stated that Islam that they follow is Islam existing in Indonesia, which has Indonesian traditions. Therefore they obey the corridor of dressing, like the clothes cover the *aurat*, but they still show Indonesian style so that they looks uniquely Indonesian. They are Muslim women, but Indonesian.

Other informants, such as R4 and R5, as a women who are working in the public sector, they always considered their performance. Therefore, the informants also considered some aspects of fashion, as what style becoming trend, suitability of clothes. Informants of R9 and R10 even emphasized that even though they wear Muslim clothes, they must still show beauty and modernity.

4.c. The impact of the consideration on the women and external side of the women

The impact of the Muslim clothing wearing can be seen from the persons who wear the muslim clothings and the clothing provider or produser. From the informant's point of view, as the persons who wear of Muslim clothing, because of these various considerations, they make various efforts to meet standards in their dressing. On the

other hand, they feel that their needs are fulfilled because of the existence of online marketplaces and fashion boutiques available in various regions. Below is the pattern they use in meeting their need in dressing:

Tabel 3: Patterns of Preference

Dimensions of Sources of Information	First Step to Take	Final Decision	Main Consideration
Magazine	V		
Television	V		
Internet	V	V	V
Department Store		V	
Persons	V	V	V
Fashion Boutique	V	V	V

Source: Primary data

After getting information about the clothing model on television, printed media, or some other information-communication channels, some women try to find the fashion models that they watched in the media, in department stores or outlets, internet, and Muslim clothing stores existing nearby their houses or any other places in Semarang. It is these places that meet their clothing needs. One respondent also stated that traditional markets are also a good option if they need Muslim clothing and other equipment. Other women indicated that they preferred to engage a tailor to produce their preferred model of dress. For those who chose a tailor, their orders were usually based on specific dress patterns. Consideration of the choices is related to the quality of materials and colors, seam strength, as well as the models.

Based on the above data, it is obvious that mainly people got the first information on fashion is from media. This is understandable because media with various forms have entered and co-opted human life. Therefore the media is very influential in the formation of culture, including the culture of dress and lifestyle.

For some women, after the first step choosing process, the options to meet the fashion boutiques apparently because of the concept of appropriateness of the dress. Some women asserted that there is one cloth for one ocassion, such as a work or a party dress. They stated that dress is not just a dress but also a media for showing who is the user and how the user saw what a dress for.

5.0 Discussion

The role of the mass media as a major means of communication is acknowledged throughout modern society (Keswani, 2018). The mass media, in both printed and electronic forms, in the view of postmodernism, is a source of followers, a channel and an example for the emergence of consumer culture (Gauthier, 2020). The expression of consumer culture as a form of postmodernism culture is easily found in the field of fashion models, and is evident in the lifestyle of the people which is expressed in the form of dressing (Gauthier, 2020; Mike, 2001). How people wearing their clothes may be traced to their information source, which is often a form of the media (Raynaldi, 2019). In postmodern era it is extended into any internet channel and platform.

The existence of various media resources as channels of information in a community allowed the media selection process in adopting a certain dressing style (Belfanti, 2009; Bellido-Pérez, 2018; Lebdaoui, 2020) and is deemed appropriate by members of the public as a means of expresing their tastes. The channels and platforms in which the media becomes a source of information, including for the style of dress, shared widely among women community, included women pengajian members, no matter their social and economic levels.

The ways of the message of media go through audiences are by showing public figures wearing certain dressing model or by directly offering the product or any other ways are effective in their own in disseminating the new life style. Matthews et al. (2015) found in their research that whoever the figures, both the public figures in any agency, including government, political or any other professional agency, and artists, that have influence on public life, are included in fashion design and promotion (Matthews, 2015). The point in this context is the frequency which public figures are featured in the media will influence the life style (including dress style) of the audience.

The decision to wear Muslim clothing with Indonesian nuances, according to their needs as workers, professionals, women activists, or as housewives can be served

by the existence of various e-market places or e-commerce (Lynch, 2020). This virtual trading space is getting wider in offering products (Bellido-Pérez, 2018). Muslim clothing that is typical of Indonesia with various motifs from various regions in Indonesia is easy to find (Prentice, 2018). Likewise, fashion models that suit the needs of the audience.

The flow of the knowledge system about clothing from sources of knowledge about clothing, types of media, and access to media by women *pengajian* members can be analyzed in tabular form as shown in Table 2 below.

Table 2. Sources of information and knowledge about fashion

System of Knowledge	Source of Knowledge	Types of Media	Access
Knowledge about fashion	Electronic media	TV, internet	Home
	Printed media	Magazine, women tabloid	Home
	Fashion-model books	Monthly, quarterly, 6th monthly, annually	Public areas
	Department stores	Public department stores, specific muslim department stores	Public areas
	Other people	All forms	Anywhere

Source: Primary Data

Of the various forms of potential information access, the media is the form that provides easiest access to allow members of pengajian to obtain information related to their fashions (Tarlo, 2010b). Although the members of pengajian kept in their houses and did not go any where but they are still possible to get any information because of they have some media information channels like television and magazine, and even internet (Khurshid, 2019). In Indonesian context most of middle-class society members generally had television in their houses, also magazine, that they buy by them selves or by borrowing to any friends. The current progress among pengajian members is that because many members of pengajian now facilitated them selves with any communication and telecomunication facilities like mobile phone with the facility access to internet it is most possible to them to access any information from those channel of information technology.

In the programs that are transmitted on various television stations, in addition to the essence of the program, the appearance of the characters in the show is also of considerable potential interest in the context of how to dress, how to talk, and how to behave. In the case of internet access even the processes were more direct, because only by toching top of the finger people may search any news they want to find. This is relevant to what Jennifer stated in the context that images offered by media are very influencial toward the ways of women behave and express themselves (Jennifer S. Mills; Amy Shannon and Jacqueline Hogue, 2017), with their studies revealing that one of the main points of interest in watching television and/or reading magazines, is related to the performance of the artists, including the program presenters.

The phenomenon of Muslim fashion cannot be approached solely from phenomena associated with religious values. In line with what was stated by Beck that the phenomenon of Muslim fashion is related to the phenomenon of globalization (Beck, 2018). There is a negotiation between global values and local values (Beck, 2018; Dehyadegari, S., Esfahani, A. M., Kordnaiej, A., & Ahmadi, 2016). There is a link between the media, manufacture, and the market that allows Muslim clothing to move quickly as other market objects move, whose speed of change depends on the speed of supply in the media (Smith, Kaitlyn M.; McClain, Jordan M; Lascity, 2018; Ting-yan Chan; Christina W.Y. Wong, 2012).

6.0 Conclusion

In the fashion phenomenon among the *pengajian* group members there are other considerations besides religion, namely Indonesian context, tradition and modernity which is oriented towards globalization. Such considerations in dressing have had a good impact on women as wearers of *muslim* clothing and for other parties who provide the clothes. On the women's side, the existence of the media makes them continue to follow fashion trend existing in media. And on the side of clothing providers, both producers and sellers, they struggled to provide and meet their consumers' needs. This dynamic is certainly very interesting.

However, this study has limitations because it only covers the women's community within the scope of the study. Therefore, it is open to further research that can cover other more diverse communities as well as other aspects of so that it will give rise to a wider treasure trove of studies on Muslim women who wear Muslim clothing.

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Tahap Kesejahteraan Subjektif Kumpulan Pelajar B40 di Universiti Teknologi Malaysia (UTM)

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Abstrak

Kajian ini memberi fokus kepada tahap kesejahteraan subjektif kumpulan pelajar B40 di Universiti Teknologi Malaysia (UTM) berdasarkan kepada tiga sub konstrak utama iaitu (i) kesejahteraan subjektif berdasarkan keadaan masa kini (*present*) yang dipengaruhi oleh pengalaman hidup (*experience*), (ii) kesejahteraan subjektif berdasarkan keadaan masa lalu (*past*) yang dipengaruhi oleh penilaian terhadap hidupan masa lepas (*evaluation*) dan (iii) kesejahteraan subjektif berdasarkan kepada jangkaan masa hadapan (*prospect*) yang dipengaruhi oleh penilaian terhadap masa hadapan (*expectation*). Subjek kajian terdiri daripada 30 orang kumpulan pelajar B40 di UTM. Data kajian diperolehi daripada borang soal selidik yang diedarkan kepada responden yang terlibat dalam kajian. Instrumen kajian yang digunakan dalam kajian ini adalah instrumen *Savoring Beliefs Inventory (SBI)* yang telah diadaptasi, disesuaikan dan diterjemahkan dalam bahasa melayu. Hasil dapatan kajian menunjukkan bahawa tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM adalah tinggi bagi ketiga-tiga sub konstruk yang digunakan. Bagi sub konstruk pertama iaitu kesejahteraan subjektif berdasarkan kepada keadaan masa kini (*present*) yang dipengaruhi oleh pengalaman hidup (*experience*) secara keseluruhannya menunjukkan tahap kesejahteraan subjektif yang tinggi (Median=3.00). Manakala, bagi sub konstruk kedua pula iaitu kesejahteraan subjektif berdasarkan kepada keadaan masa lalu (*past*) yang dipengaruhi oleh penilaian terhadap hidupan masa lepas (*evaluation*), kesejahteraan subjektif berada di tahap yang tinggi (Median=3.50). Begitu juga dengan sub konstruk ketiga iaitu kesejahteraan subjektif berdasarkan kepada jangkaan masa hadapan (*prospect*) yang dipengaruhi oleh penilaian terhadap masa hadapan (*expectation*) menunjukkan tahap kesejahteraan subjektif yang tinggi

(Median=3.50). Ini bermakna tumpuan perlu diberikan kepada kumpulan pelajar B40 agar kesejahteraan subjektif mereka dapat terus dijaga dan dipertingkatkan.

Kata kunci: Pelajar B40, keluarga pendapatan rendah, kesejahteraan subjektif

2.0 Latar Belakang Kajian

Pendapatan merupakan perkara penting dalam menentukan kesejahteraan subjektif kerana pendapatan mempunyai hubungan yang positif dan singnifikan dengan kesejahteraan subjektif (Reyes-García, Babigumira, Pyhälä, Wunder, Zorondo-Rodríguez& Angelsen, 2016). Bukan itu sahaja, kesejahteraan subjektif juga menentukan tahap kebahagiaan dan kepuasan hidup yang mana kebahagiaan serta kepuasan hidup ini dipengaruhi oleh pendapatan isi rumah (Boo, Yen & Lim, 2020).

Di Malaysia, dianggarkan lebih kurang 2.78 juta isi rumah B40 berpendapatan di bawah nilai RM 4,360 (Jabatan Perangkaan Malaysia, 2020). Jumlah ini sememangnya agak besar dan membimbangkan. Namun begitu, pihak kerajaan melalui Kementerian Pengajian Tinggi misalnya telah memperkenalkan pelbagai bantuan kepada pelajar B40, misalnya inisiatif Peranti Siswa Keluarga Malaysia yang memberi manfaat kepada kira-kira 350,000 orang pelajar B40 (Berita Harian, 2022), program Pembangunan Siswa Sulung Keluarga Malaysia untuk keluarga B40 (SULUNG) (Bernama, 2022) dan pelbagai inisiatif lagi.

Namun begitu, realitinya masalah kewangan yang dihadapi pelajar B40 masih tidak berkesudahan dan isu kewangan ini merupakan salah satu faktor yang dikenalpasti sebagai punca keciciran pelajar di peringkat pengajian tinggi (Othman, Othman & Rosli, 2021). Bukan itu sahaja, pelajar B40 peringkat pengajian tinggi juga berhadapan dengan pelbagai tekanan seperti tekanan yang bakal dihadapi apabila tamat pengajian. Perkara ini selari dengan laporan akhbar yang mengatakan bahawa peluang melanjutkan pelajaran ke peringkat menara gading bukanlah suatu jaminan kepada pelajar B40 untuk mengubah nasib diri dan keluarga (Berita Harian, 2019).

Pelajar kumpulan berpendapatan rendah B40 juga didapati bukan sahaja meminjam komputer riba untuk menyiapkan tugasan, malah mereka juga kelaparan dan terpaksa bekerja sambilan sebagai penghantar makanan untuk mengirim wang ringgit kepada keluarga mereka (New Straits Time, 2022). Bukan itu sahaja, dalam situasi yang melibatkan pembelajaran secara atas talian, pelajar daripada kumpulan berpendapatan rendah dikatakan mempunyai masalah untuk membeli peranti digital dan akses internet kerana keluarga mereka lebih cenderung menyediakan makanan diatas meja berbanding membeli peranti digital dan juga internet (Mansor, Omar & Saad, 2021).

Banyak kajian lepas yang dijalankan bertujuan untuk mengukur kesejahteraan subjektif, misalnya kajian yang dijalankan dalam kalangan penduduk di China mendapati bahawa, untuk meningkatkan kesejahteraan subjektif penduduk, tumpuan perlu diberikan kepada kumpulan berpendapatan rendah (Xu, Sun, Zhu, Bai, Yu, Duan, Kou & Li, 2019). Perkara tersebut selari dengan kajian yang dijalankan di Malaysia yang mendapati bahawa kebahagiaan dan kepuasan hidup turut dipengaruhi oleh pendapatan isi rumah (Boo, Yen & Lim, 2020). Ini kerana, pendapatan dilihat sebagai satu cara ataupun simbol yang melambangkan kedudukan ataupun status, misalnya barang yang berjenama dan berkualiti baik dibeli sebagai tanda pendapatan seseorang itu tinggi (Tay, Zyphur & Batz, 2018). Perkara tersebut secara tidak langsung memberi kesan terhadap kesejahteraan subjektif kumpulan pelajar B40.

Oleh itu, dalam kajian ini pengkaji ingin melihat sejauhmanakah tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM. Dalam kajian ini juga pengkaji akan berfokuskan kesejahteraan subjektif berdasarkan kepada tiga sub konstruk iaitu penilaian kehidupan masa kini yang bertumpu kepada pengalaman masa lalu (*present-experience)*, penilaian kehidupan masa lepas yang bertumpu kepada pengalaman terhadap masa lalu (*past-evaluation)* dan penilaian kehidupan di masa depan yang bertumpu kepada jangkaan masa depan (*prospect-expectation)*. Ketiga-tiga sub konstruk ini seterusnya dapat menentukan tahap kesejahteraan subjektif kumpulan pelajar B40 sama ada berada di tahap yang tinggi, sederhana ataupun rendah (Durayappah, 2010).

3.0 Objektif Kajian

Kajian ini dijalankan untuk mengenal pasti tahap kesejahteraan subjektif kumpulan pelajar B40 berdasarkan kepada tiga elemen iaitu elemen 3P dan 3 E:

i)   Kesejahteraan subjektif pada masa kini (*present*) menumpukan kepada aspek pengalaman (*experience*) masa lepas.

ii)   Kesejahteraan subjektif masa lalu *(past)* menumpukan kepada aspek (*evaluation*) iaitu penilaian terhadap masa lalu.

iii) Kesejahteraan subjektif masa hadapan (*prospect*) tertumpu kepada jangkaan (*expectation*) masa depan.

4.0 Metodologi Kajian

Kajian ini merupakan kajian kuantitatif berbentuk tinjauan menggunakan soal selidik dan hanya melibatkan pelajar kumpulan B40 di Universiti Teknologi Malaysia (UTM). Dengan menggunakan kaedah persampelan rawak mudah, pengkaji mengedarkan borang soal selidik kepada responden yang terlibat. Kajian ini hanya melibatkan 30 orang responden dan data kajian dianalisis menggunakan ujian bukan parametrik. Dalam menjalankan kajian ini, pengkaji mendapatkan kebenaran dan mendapatkan senarai nama pelajar B40 daripada pihak pengurusan Hal Ehwal Pelajar (HEP). Setelah mendapatkan senarai nama, pengkaji meletakkan nama pelajar didalam kotak dan menggunakan kaedah cabutan untuk memilih responden secara rawak. Seterusnya, peserta kajian yang dipilih secara rawak telah dimaklumakan bahawa dapatan kajian adalah sulit. Bagi menjalankan proses pengumpulan data kajian, pengkaji membina borang soal selidik berdasarkan kepada objektif kajian. Borang soal selidik terdiri daripada empat bahagian iaitu bahagian A mengenai maklumat demografi responden seperti jantina responden, tahun pengajian semasa dan jumlah gabungan pendapatan bulanan ibu bapa. Manakala, bahagian B adalah mengenai elemen terhadap jangkaan masa depan, bahagian C mengenai elemen

nikmat kesenangan hidup dan bahagian D mengenai elemen ingatan terhadap masa lalu. Bahagian B, C, dan D ini merupakan elemen yang berkait dengan subkonstruk kajian iaitu *present-experince, past-evaluation dan prospect-expectation.* Secara keseluruhannya, terdapat 27 item soal selidik yang menyentuh tentang maklumat demografi responden dan selebihnya adalah berkaitan dengan sub konstruk kajian. Soal selidik ini dibina dan diadaptasi dan diubahsuai daripada intrumen *Savoring Beliefs inventory (SBI).* Untuk mengkaji tahap kesejahteraan subjektif pelajar B40 di UTM, pengkaji menggunakan 4 skala likert iaitu (1) mewakili sangat tidak setuju, (2) mewakili tidak setuju, (3) mewakili setuju dan (4) mewakili sangat setuju. Data yang dikumpul, dianalisis menggunakan perisian *Statistical Package for the Social Sciences* (SPSS) dan dianalisis menggunakan analisis statistik diskriptif.

5.0 Hasil Kajian

5.1 Profil demografi responden

Kajian ini melibatkan seramai 30 orang responden terdiri daripada kumpulan pelajar B40 di UTM. Majoriti responden adalah pelajar perempuan iaitu seramai 16 orang (53.3%) dan selebihnya adalah pelajar lelaki iaitu seramai 14 orang (46.7%). Bagi katogeri tahun, majoriti responden adalah pelajar tahun tahun dua iaitu seramai 28 orang (93.3%) dan selebihnya iaitu dua orang (6.7%) merupakan pelajar tahun 3. Bagi pendapatan isi rumah B40 pula, majoriti pelajar iaitu seramai 26 orang (86.7%) adalah terdiri daripada kumpulan B1 dengan pendapatan ibu bapa kurang daripada RM2500.00. Manakala selibihnya iaitu tiga orang (10.0%) merupakan keluarga kumpulan B2 dengan jumlah pendapatan sekitar RM 2500 hingga RM 3169.00 dan hanya seorang (3.3%) merupakan pelajar kumpulan B4 dengan gabungan pendapatan ibu bapa sekitar RM3970 hingga RM 4850.00 Jadual 1 dibawah menunjukkan taburan latar belakang demografi responden yang terlibat dalam kajian.

Jadual 1: Taburan sosio demografi responden

Demografi	Katogeri	Kekerapan (n)	Peratusan (%)
Jantina	Lelaki Perempuan	14 16	46.7% 53.3%
Tahun Pengajian	Tahun 2 Tahun 3	28 2	93.3% 6.7%
Pendapatan isi rumah	Kurang daripada RM2500 (B1) RM2500-RM 3169 (B2) RM3170-RM3969 (B3) RM3970-RM4850 (B4)	26 3 0 1	86.7% 10.3% 0% 3.3%

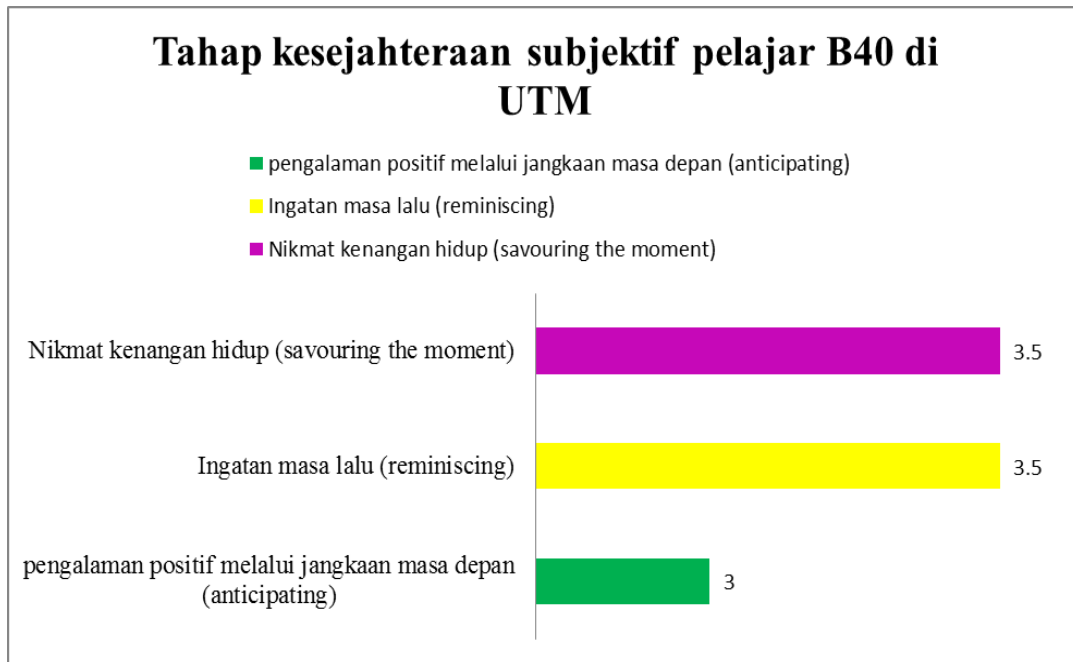## 5.2 Tahap kesejahteraan subjektif pelajar kumpulan B40

Kesejahteraan subjektif merupakan elemen psikologi yang menentukan kebahagiaan dan kepuasan hidup pelajar kumpulan B40. Jadual 1 menunjukkan ukuran tahap kesejahteraan subjektif yang digunakan dalam kajian ini.

Jadual 1: Ukuran tahap kesejahteraan subjektif yang digunakan dalam kajian ini

Skor keseluruhan median (M)	Tahap kesejahteraan subjektif
$1.00 \leq M \leq 1.99$	rendah
$2.00 \leq M \leq 2.99$	sederhana
$3.00 \leq M \leq 4.00$	tinggi

5.2.1 Analisis keseluruhan tahap kesejahteraan subjektif kumpulan pelajar B40 berdasarkan sub konstruk kajian

Berdasarkan ukuran tahap kesejahteraan subjektif yang dinyatakan dalam jadual 1, analisis median bagi ketiga-tiga sub konstruk yang digunakan dalam kajian ini diterjemahkan dalam rajah 1.

Rajah 1: Tahap kesejahteraan subjektif pelajar B40 di UTM

Rajah 1 menunjukkan analisis jumlah median bagi kesejahteraan subjektif iaitu pengalaman positif melalui jangkaan masa depan (*anticipating*), ingatan masa lalu (*reminiscing*) dan nikmat kenangan hidup (*savouring the moment*). Ketiga-tiga ketogeri ini menentukan elemen yang berkait dengan sub konstruk kajian iaitu *present-experince, past-evaluation* dan *prospect-expectation.* Analisis dijalankan berdasarkan skor tahap kesejahteraan subjektif pelajar B40 menggunakan instrumen *Savoring Beliefs inventory (SBI).* Analisis keseluruhan menunjukkan bahawa tahap kesejahteraan subjektif pelajar B40 di UTM adalah tinggi. Berdasarkan rajah 1, analisis skor median menunjukkan bahawa nikmat kenangan hidup menunjukkan jumlah median yang tinggi iaitu (Median=3.50). Manakala pengalaman positif melalui jangkaan masa depan mempunyai jumlah median (Median=3.00) dan ingatakan masa lalu menunjukkan jumlah median yang tinggi iaitu (Median=3.50). Ketiga-tiga sub konstruk ini secara keseluruhannya menunjukkan tahap kesejahteraan subjektif yang tinggi.

5.2.2 Tahap kesejahteraan subjektif pada masa kini (present) menumpukan kepada pengalaman (experience) masa lepas.

Jadual 2 menunjukkan analisis taburan tahap kesejahteraan subjektif sub konstruk pertama iaitu *present-experience*. Hasil dapatan kajian berdasarkan 8 soalan berkenaan dengan pengalaman positif melalui jangkaan masa depan (*anticipating*) mendapati bahawa tahap kesejahteraan subjektif kumpulan pelajar B40 bagi sub konstruk ini secara keseluruhannya berada pada tahap tinggi dengan nilai median keseluruhan sebanyak (Median=3.00). Terdapat lima item pada sub konstruk ini yang menunjukkan nilai median yang tinggi (Median=3.00), manakala dua item menunjukkan nilai median sederhana dengan nilai (Median=2.00) dan satu item menunjukkan nilai median yang juga sederhana dengan nilai (Median=2.5).

Walaupun median keseluruhan bagi sub konstruk ini adalah tinggi, tetapi masih ada beberapa peratus orang pelajar tertentu yang memilih jawapan "sangat tidak setuju" dan "tidak setuju". Misalnya item 1, seramai 10.0% orang pelajar menyatakan bahawa mereka tidak setuju dan 3.3% menyatakan mereka sangat tidak setuju pada item yang menyatakan bahawa mereka berasa seronok apabila melihat masa hadapan. Bagi item 2 pula, majoriti pelajar iaitu 70% menyatakan mereka tidak setuju dan 13.3% menyatakan mereka sangat tidak setuju bahawa mereka tidak suka terlalu berharap. Seterusnya item ketiga, seramai 26.7% menyatakan mereka tidak setuju bahawa mereka dapat merasakan kegembiraan yang dinanti-nantikan. Bagi item keempat pula, seramai 3.3% orang pelajar menyatakan mereka sangat tidak setuju dan seramai 16.7% orang pelajar pula menyatakan bahawa mereka tidak setuju dengan item tersebut yang menyatakan bahawa menjangkakan sesuatu adalah membuang masa.

Seterusnya, seramai 53.3% orang pelajar menyatakan mereka tidak setuju dengan item kelima yang menyatakan bahawa mereka boleh menikmati peristiwa sebelum ia berlaku. Seterusnya, Bagi item keenam pula menunjukkan seramai 6.7% orang pelajar sangat tidak setuju dan 40.% orang pelajar tidak setuju bahawa mereka sukar untuk merasa teruja sebelum sesuatu berlaku. Seterusnya item ketujuh menunjukkan seramai 23.3% orang pelajar tidak setuju bahawa mereka merasa

seronok dengan membayangkan hasilnya. Bagi item terakhir iaitu item kelapan pula seramai 3.3% orang pelajar menyatakan mereka sangat tidak setuju dan 43.3% menyatakan mereka tidak setuju dengan item ini yang menyatakan bahawa mereka berasa tidak selesa apabila menjangkakan hasil. Secara keseluruhannya, perkara seperti keseronokan melihat masa depan merupakan perkara yang tinggi dalam menentukan tahap kesejahteraan subjektif pelajar. Taburan tahap kesejahteraan subjektif bagi sub konstruk *present-experience* ini dapat dilihat dalam jadual 2.

Jadual 2 : Taburan tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM
(*present-experience)*

No.	Konstruk : (*present-experience)* pengalaman positif melalui jangkaan masa depan (*anticipating*)	Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju	Median
1	Saya berasa seronok apabila melihat masa hadapan	1 (3.3%)	3 (10.0%)	21 (70.0%)	5 (16.7%)	3.00
2	Saya tidak suka terlalu berharap	4 (13.3%)	21 (70.0%)	5 (16.7%)	-	2.00
3	Saya dapat merasakan kegembiraan yang dinanti-nantikan	-	8 (26.7%)	18 (60.0%)	4 (13.3%)	3.00
4	Menjangkakan sesuatu adalah membuang masa bagi saya	1 (3.3%)	5 (16.7%)	20 (66.7%)	4 (13.3%)	3.00
5	Saya boleh menikmati peristiwa sebelum ia berlaku	-	16 (53.3%)	12 (40.0%)	2 (6.7)	2.00
6	Saya sukar untuk merasa teruja sebelum sesuatu berlaku	2 (6.7%)	12 (40.0%)	15 (50.0%)	1 (3.3%)	2.50
7	Saya berasa seronok dengan membayangkan hasilnya	-	7 (23.3%)	17 (56.7%)	6 (20.0%)	3.00
8	Saya rasa tidak selesa apabila menjangkakan hasil	1 (3.3%)	13 (43.3%)	16 (53.3%)	-	3.00
Median keseluruhan		**3.00**				

*Nota: item nombor 2,4,6 dan 8 merupakan item negatif.

5.2.3 Tahap kesejahteraan subjektif masa lalu (past) menumpukan kepada (evaluation) penilaian masa lalu.

Jadual 3 menunjukkan analisis taburan tahap kesejahteraan subjektif sub konstruk kedua iaitu *past-evaluation*. Hasil dapatan kajian berdasarkan 8 soalan berkenaan dengan nikmat kenangan hidup (*savouring the moment*) mendapati bahawa tahap kesejahteraan subjektif kumpulan pelajar B40 bagi sub konstruk ini secara keseluruhannya berada di tahap tinggi dengan skor median keseluruhan sebanyak (Median=3.50). Kesemua item iaitu lapan item yang terdapat dalam sub konstruk ini menunjukkan nilai median yang sama dan tinggi dengan nilai (Median=3.00).

Walaupun median keseluruhan bagi sub konstruk ini adalah tinggi, namun begitu masih ada segelintir pelajar yang memilih jawapan "sangat tidak setuju" dan "tidak setuju" pada item-item soalan yang diberikan. Misalnya, item 9 seramai 16.7% tidak setuju bahawa mereka tahu cara memanfaatkan masa dengan baik. Item 10 pula menunjukkan seramai 6.7% sangat tidak setuju dan 40.0 % tidak setuju bahawa mereka sukar untuk mengekalkan perasaan yang baik. Seterusnya item 11 menunjukkan seramai 3.3% sangat tidak setuju dan 10.0% peratus tidak setuju bahawa mereka boleh memanjangkan kenikmatan dengan usaha sendiri. Bagi item 12 pula, seramai 3.3% sangat tidak setuju dan 40% tidak setuju bahawa diri mereka yang menghalang mereka dalam menikmati keseronokan. Item 13 pula menunjukkan 10% orang pelajar tidak setuju bahawa mereka dapat menghargai sepenuhnya perkara-perkara yang baik.

Seterusnya item 14 juga menunjukkan 10% orang pelajar tidak setuju bahawa mereka tidak dapat menikmati kegembiraan pada saat-saat bahagia. Item ke 15 pula menunjukkan seramai 20% orang pelajar tidak setuju bahawa mereka merasa mudah untuk membuat diri gembira apabila mahu. Manakala item 16 pula menunjukkan 20% orang pelajar tidak setuju bahawa mereka tidak gembira seperti yang sepatutnya. Taburan tahap kesejahteraan subjektif bagi sub konstruk *past-evaluation* ini dapat dilihat dalam jadual 3.

Jadual 3: Taburan tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM
(*past-evaluation*)

No.	Konstruk : (*past-evaluation*) Nikmat kenangan hidup (*savouring the moment*)	Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju	Median
9	Saya tahu cara memanfaatkan masa dengan baik	-	5 (16.7%)	22 (73.3%)	3 (10.0%)	3.00
10	Saya sukar mengekalkan perasaan yang baik	2 (6.7%)	12 (40.0%)	16 (53.3%)	-	3.00
11	Saya boleh memanjangkan kenikmatan dengan usaha sendiri	1 (3.3%)	3 (10.0%)	22 (73.3%)	4 (13.3%)	3.00
12	Diri saya yang menghalang saya dalam menikmati keseronokan	1 (3.3%)	12 (40.0%)	14 (46.7%)	3 (10.0%)	3.00
13	Saya rasa dapat menghargai sepenuhnya perkara-perkara yang baik	-	3 (10.0%)	20 (66.7%)	7 (23.3)	3.00
14	Saya tidak dapat menikmati kegembiraan pada saat-saat Bahagia	-	3 (10.0%)	18 (60.0%)	9 (30.0%)	3.00
15	Saya merasa mudah untuk membuat diri gembira apabila mahu	-	6 (20.0%)	20 (66.7%)	4 (13.3%)	3.00
16	Saya tidak gembira seperti yang sepatutnya	-	6 (20.0%)	20 (66.7%)	4 (13.3%)	3.00
Median keseluruhan		3.50				

*Nota : Item 10,12,14 dan 16 merupakan item negatif

5.2.3 Tahap kesejahteraan subjektif masa hadapan (prospect) tertumpu kepada jangkaan (expectation) masa depan.

Jadual 4 menunjukkan analisis taburan tahap kesejahteraan subjektif sub konstruk ketiga iaitu *prospect-expectation*. Hasil dapatan kajian berdasarkan 8 soalan berkenaan dengan ingatan masa lalu (*reminiscing*) mendapati bahawa tahap kesejahteraan subjektif kumpulan pelajar B40 secara keseluruhannya berada pada tahap yang tinggi dengan skor median keseluruhan sebanyak (Median=3.50).

Kesemua item iaitu lapan item yang terdapat dalam sub konstruk ini menunjukkan nilai median yang sama dan tinggi dengan nilai (Median=3.00).

Walaupun median keseluruhan bagi sub konstruk ini adalah tinggi, namun begitu masih ada segelintir pelajar yang memilih jawapan "sangat tidak setuju" dan "tidak setuju" pada item-item soalan yang diberikan. Item 17 misalnya menunjukkan bahawa seramai 10% orang pelajar menyatakan mereka tidak setuju bahawa mereka seronok mengenang semula masa-masa gembira. Seterusnya, item 18 pula menunjukkan seramai 16.7% sangat tidak setuju dan 20% tidak setuju bahawa mereka tidak suka mengenang perkara yang telah berlalu. Manakala item 19 pula menunjukkan 3.3% pelajar sangat tidak setuju dan 16.7% tidak setuju bahawa mereka berasa seronok dengan mengingati perkara lepas. Item 20 pula menunjukkan 6.7% pelajar tidak setuju dan 36.7% sangat tidak setuju bahawa mereka berasa kecewa apabila mengenangkan sesuatu. Item 21 pula menunjukkan 16.7% orang pelajar tidak setuju bahawa mereka suka menyimpan kenangan untuk diingati kemudian. Bagi item 22 pula, seramai 3.3% pelajar sangat tidak setuju dan 6.7% pelajar tidak setuju bahawa mengenangkan kenangan adalah membuang masa bagi saya. Item 23 pula menunjukkan seramai 20% pelajar tidak setuju bahawa mudah untuk mereka menghidupkan semula kegembiraan daripada kenangan yang menggembirakan. Seterusnya, item 24 iaitu item terakhir bagi sub konstruk ini menunjukkan bahawa seramai 6.7% pelajar sangat tidak setuju dan 16.7% pelajar tidak setuju dengan pernyataan bahawa adalah terbaik bagi mereka untuk tidak mengimbau masa lalu yang menyeronokkan. Taburan tahap kesejahteraan subjektif bagi sub konstruk *past-evaluation* ini dapat dilihat dalam jadual 4.

Jadual 4 :Taburan tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM
(*prospect-expectation*)

No.	Konstruk : (*prospect-expectation*) Ingatan masa lalu (reminiscing)	Sangat tidak setuju	Tidak setuju	Setuju	Sangat setuju	Median
17	Saya seronok mengenang semula masa-masa gembira	-	3 (10.0%)	14 (46.7%)	13 (43.3%)	3.00
18	Saya tidak suka mengenang perkara yang telah berlalu	5 (16.7%)	6 (20.0%)	13 (43.3%)	6 (20.0%)	3.00
19	Berasa seronok dengan mengingati perkara lepas	1 (3.3%)	5 (16.7%)	18 (60.0%)	6 (20.0%)	3.00
20	Saya berasa kecewa apabila mengenangkan sesuatu	2 (6.7%)	11 (36.7%)	16 (53.3%)	1 (3.3%)	3.00
21	Saya suka menyimpan kenangan untuk diingati kemudian	-	5 (16.7%)	11 (36.7%)	14 (46.7%)	3.00
22	Mengenangkan kenangan adalah membuang masa bagi saya	1 (3.3%)	2 (6.7%)	15 (50.0%)	12 (40.0%)	3.00
23	Mudah untuk menghidupkan semula kegembiraan daripada kenangan yang menggembirakan	-	6 (20.0%)	19 (63.3%)	5 (16.7%)	3.00
24	Adalah terbaik bagi saya untuk tidak mengimbau masa lalu yang menyeronokkan	2 (6.7%)	5 (16.7%)	14 (46.7%)	9 (30.3%)	3.00
	Median Keseluruhan		**3.50**			

Nota : Item 18, 20, 22 dan 24 merupakan item negatif.

6.0   Perbincangan

Kajian ini dijalankan bertujuan untuk mengenal pasti tahap kesejahteraan subjektif kumpulan pelajar B40 di Universiti Teknologi Malaysia (UTM) berdasarkan kepada konsep 3P yang merangkumi aspek penilaian terhadap kehidupan masa kini yang bertumpu kepada pengalaman masa lalu (*present-experience*), penilaian kehidupan masa lepas yang bertumpu kepada penilaian terhadap masa lalu (*past-evaluation*) dan penilaian kehidupan di masa depan yang bertumpu kepada jangkaan masa depan (*prospect-expectation*) (Durayappah, 2010). Keseluruhan pelajar yang terlibat sebagai subjek kajian merupakan pelajar kumpulan B40 yang berasal daripada keluarga berpendapatan rendah. Pengkaji memilih kumpulan pelajar berpendapatan

rendah untuk melihat sama ada pendapatan atau status sosio ekonomi keluarga itu mempengaruhi penilaian pelajar terhadap kesejahteraan subjektif ataupun tidak. Hal ini kerana, terdapat kajian terdahulu yang menyatakan bahawa pendapatan mempengaruhi kesejahteraan subjektif seseorang (Jorgensen, Jamieson & Martin, 2010).

Keputusan kajian menunjukkan bahawa konstruk pertama bagi kesejahteraan subjektif iaitu *present-experience* berada pada tahap yang tinggi dengan nilai keseluruhan median (Median=3.00). *Present-experience* merupakan konstruk kesejahteraan subjektif berfokus kepada masa kini (*present*) berdasarkan kepada pengalaman (*experience*). Sub kontruk pertama ini banyak berfokus tentang rasa seronok, rasa gembira, rasa sukar, rasa tidak selesa berdasarkan bayangan ataupun jangkaan masa depan. Perasaan positif dan negatif ini diambil kira dalam menentukan kesejahteraan subjektif selari dengan kajian lepas yang menyatakan bahawa ciri utama kebahagiaan dan kepuasan hidup yang tinggi dipengaruhi oleh perasaan positif dan perasaan negatif (Diener, 2022). Walaupun secara keseluruhannya kesejahteraan subjektif pelajar bagi sub konstruk *present-experience* adalah tinggi, namun, masih ada segelintir pelajar yang rendah tahap kesejahteraan subjektif mereka, selari dengan kajian terdahulu yang menyatakan bahawa kumpulan pelajar isi rumah berpendapatan paling rendah mempunyai tahap kesejahteraan subjektif yang rendah (Malli & Yıldızhan, 2018).).

Seterusnya, keputusan kajian bagi sub konstruk kedua iaitu *past-evaluation* juga berada pada tahap yang tinggi dengan nilai keseluruhan median (Median=3.50). *Past-evaluation* merupakan konstruk kesejahteraan subjektif berfokus kepada masa lalu (*past*) berdasarkan kepada penilaian terhadap masa lalu (*evaluation*). Sub konstruk kedua ini banyak berfokus tentang perasaan positif dan perasaan negatif dalam menikmati kenangan hidup seperti memanfaatkan masa, rasa gembira dan rasa tidak gembira. Walaupun tahap kesejahteraan subjektif bagi sub konstruk *past-evaluation* ini secara keseluruhannya adalah tinggi, namun masih ada sebilangan kecil pelajar yang mempunyai tahap kesejahteraan subjektif yang rendah. Keputusan kajian ini selari dengan kajian lepas yang menyatakan bahawa pelajar hari ini mempunyai skor tahap kesejahteraan subjektif yang lebih rendah berbanding pelajar 20 tahun

dahulu (Sletta, Tyssen & Løvseth, 2019). Bukan itu sahaja, perkara tersebut juga selari dengan kajian yang menyatakan bahawa masalah seperti kemiskinan dan ekonomi juga berkait dengan tahap kesejahteraan subjektif yang rendah (Howell & Howell, 2008).

Seterusnya, sub konstruk ketiga kesejahteraan subjektif adalah *prospect-expectation*. Dapatan kajian menunjukkan tahap kesejahteraan subjektif bagi konstruk ketiga ini berada pada tahap yang tinggi dengan nilai keseluruhan median (Median=3.50). *Prospect-expectation* merupakan konstruk kesejahteraan subjektif berfokus kepada masa depan (*prospect*) berdasarkan kepada jangkaan masa depan (*expectation*). Sub konstruk ketiga ini banyak berfokus tentang perasaan positif dan perasaan negatif dalam menikmati kenangan hidup. Perasaan tersebut turut menggambarkan tindak balas kognitif seseorang. Walaupun tahap kesejahteraan subjektif bagi sub konstruk *prospect-expectation* ini secara keseluruhannya adalah tinggi, namun masih ada sebilangan kecil pelajar yang mempunyai tahap kesejahteraan subjektif yang rendah. Keputusan kajian ini selari dengan kajian lepas yang menyatakan bahawa tahap kesejahteraan subjektif seseorang itu rendah disebabkan oleh faktor tekanan seperti kekangan masa (Sharif, Mogilner & Hershfield, 2021). Kajian lepas juga menyatakan bahawa tekanan berkait dengan tahap kesejahteraan subjektif yang rendah (Ng & Diener, 2021).

Secara keseluruhannya, keputusan kajian ini menunjukkan bahawa tahap kesejahteraan subjektif pelajar B40 di universiti adalah baik. Hasil kajian ini selari dengan kajian lepas yang menyatakan bahawa golongan B40 yang mempunyai taraf ekonomi yang lebih tinggi mempunyai tahap kesejahteraan subjektif yang lebih tinggi berbanding golongan B40 yang mempunyai kedudukan ekonomi yang lebih rendah (Ismail & Jeli, 2020). Perkara ini disokong oleh kajian lepas yang menyatakan bahawa status yang tinggi memberi sedikit kesan terhadap kesejahteraan subjektif seseorang (Anderson, Kraus, Galinsky, & Keltner, 2012). Seterusnya, kajian ini turut mempunyai beberapa limitasi. Kajian ini hanya melibatkan 30 orang sahaja pelajar B40 sebagai sampel dan hanya melibatkan satu universiti sahaja. Kajian dimasa akan datang boleh ditambah baik dengan melibatkan pelajar daripada universiti-universiti lain yang berbeza dalam aspek latar belakang sosio ekonomi seperti pelajar kumpulan

M40 dan T20. Walaupun banyak kajian yang telah dijalankan untuk mengukur kesejahteraan subjektif pelajar, tumpuan juga perlu diberikan kepada aspek intervensi yang bersesuaian untuk menambah baik kesejahteraan subjektif pelajar universiti agar kebahagiaan dan kepuasan hidup mereka semasa dalam peringkat pengajian tinggi terus dijaga dan dipelihara.

7.0   Kesimpulan

Kesimpulannya, kajian ini mengukur tahap kesejahteraan subjektif kumpulan pelajar B40 di UTM. Walaupun secara keseluruhannya skor tahap kesejahteraan subjektif berada pada tahap tinggi, usaha dan perhatian secara berterusan masih perlu diambil oleh pihak pemegang taruh dalam meningkatkan kesejahteraan subjektif kumpulan pelajar B40 agar terus berada dalam keadaan yang baik dan memuaskan. Selain itu, program-program yang menggunakan modul intervensi dalam menyentuh kognitif, afektif dan psikomotor pelajar juga perlu sentiasa dilaksanakan agar kesejahteraan subjektif kumpulan pelajar B40 ini dapat dipertingkatkan. Bukan itu sahaja, semua pemegang taruh seperti ibu bapa, ahli keluarga terdekat, masyarakat, kumpulan komuniti, ahli politik, pentadbiran universiti dan rakan-rakan juga perlu memainkan peranan dalam meningkatkan kesedaran pelajar kumpulan B40 ini agar terus memelihara diri mereka supaya kesejahteraan subjektif mereka sentiasa terjamin seterusnya menjadi graduan yang cemerlang dalam aspek akademik, rohani dan jasmani.

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Penggunaan Intervensi Imej Mnemonik Dan Kesannya Terhadap Penguasaan Huruf Vokal Murid Prasekolah

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Abstrak:

Masalah dalam penguasaan kemahiran mengenal huruf masih berlaku dalam kalangan murid peringkat rendah mahupun menengah. Oleh hal yang demikian, Imej Mnemonik dibina khas sebagai intervensi bagi membantu murid yang bermasalah dalam mengingati huruf vokal (a,e,i,o,u). Imej Mnemonik merupakan gabungan Kaedah Fonik dengan Teknik Mnemonik '3 dalam 1' menggunakan unsur audio dan visual imej saling berkaitan dengan huruf. Kajian tindakan ini dilaksanakan menggunakan reka bentuk kuasi eksperimen terhadap 30 orang murid prasekolah yang dipilih secara persampelan bertujuan di salah sebuah sekolah daerah Gemas, Negeri Sembilan. Hasil dapatan data dipersembahkan dalam bentuk analisis deskriptif menggunakan perisian SPSS (*Statistical Packages for the Social Sciences*) dalam bentuk peratusan. Hasil analisis data menunjukkan bahawa terdapat peningkatan pencapaian yang ketara dalam kumpulan rawatan setelah ujian pasca dilaksanakan berbanding kumpulan kawalan. Ini menunjukkan bahawa penggunaan intervensi Imej Mnemonik mampu membantu murid prasekolah menguasai kesemua huruf vokal dalam tempoh 5 hari. Hasil dapatan kajian ini memberi impak positif dalam perkembangan kemahiran pendagogi guru. Diharapkan intervensi Imej Mnemonik ini mampu diaplikasikan dalam kalangan murid bermasalah pembelajaran kelak bagi mengatasi masalah literasi awal ini.

Kata kunci: Huruf vokal; Prasekolah; Imej Mnemonik

1.0   Pengenalan

Kemahiran mengenal huruf merupakan asas penting yang harus dikuasai oleh murid bagi membolehkan murid mempelajari literasi dengan baik. Kemahiran mengenal huruf dipelajari secara rasmi bermula pada peringkat prasekolah lagi (KPM, 2013). Tanpa penguasaan huruf yang baik, murid berhadapan dengan penguasaan kemahiran membaca dan kemahiran menulis kelak (Fong Peng, 2016; Nahar, 2020).

Oleh hal yang demikian, guru harus mempelbagaikan kaedah dan pendekatan yang sesuai mengikut kepelbagaian murid (Ajuni, 2016; M. Haziq, 2019). Guru harus memastikan bahan bantu mengajar yang digunakan mampu membantu serta menarik minat murid untuk menguasai kemahiran mengenal huruf dengan lebih berkesan (Muhammad, 2017; Roberts & Sadler, 2019). Pendekatan guru yang menggunakan Teknik hafalan semata-mata mampu memberi kesan terhadap minat murid akhirnya menyebabkan masalah dalam pencapaian akademik murid (Amalhayaty, 2015; Arshad & Sook Ching, 2017; Yahya et al., 2012). Oleh itu, kajian ini cuba untuk menekan unsur audio dan visual dalam Teknik Mnemonik bagi membantu murid mengingat seterusnya menguasai kemahiran mengenal huruf dengan lebih baik.

2.0   Latar Belakang Kajian

Berdasarkan Pelan Pembangunan Pendidikan Malaysia (PPPM) 2013-2025, pelbagai program pemulihan khas telah dilaksanakan seperti Program 3M (Membaca, Menulis dan mengira), Program Kelas Modul Asas Membaca dan Menulis (KIA2M), Program Pemulihan 3M (PROTIM), LINUS dan terkini PLaN. Namun, penguasaan literasi dalam kalangan murid di Malaysia belum dalam keadaan yang sangat memuaskan (Peng & Haris, 2020). Menurut data statistik (MacroTrends, 2021), peratus penguasaan literasi rakyat Malaysia yang berumur 15 tahun ke atas semakin menurun dari tahun 2017 sehingga 2019 menunjukkan Malaysia belum mencapai standard negara maju yang mensyaratkan kadar literasi sebanyak 100 peratus (UNESCO, 2016).

Walaupun pelbagai usaha telah dilaksanakan, namun masalah penguasaan literasi awal seperti tidak mengecam (Peng & Haris, 2020; Wan Fatmawati, 2012), keliru (Ai & Noor Suriani, 2002; Zila, 2015; Fong Peng, 2016) dan sering lupa (Ambare & Yunus, 2020) masih kerap berlaku. Atas dasar itu, kajian ini dijalankan bagi melihat kesan pelaksanaan yang menggabungkan Kaedah Fonik (Bowers, 2020; Sun & Zie, 2020) dengan Teknik Mnemonik (Manalo et al, 2015; Umi Fairus et al, 2019) yang mudah bagi membantu murid mengenal dan mengingat huruf dengan lebih efektif.

Imej Mnemonik merupakan satu intervensi yang dibina berdasarkan Kaedah Fonik serta Teknik mnemonik melalui asas Teori Dual-Coding dan gelung fonologi. Kaedah Fonik merupakan salah satu kaedah yang berkesan dalam pengajaran mengenal huruf (Yahya et. Al, 2012). Melalui pengaplikasian Teori Dual-Coding (Paivio, 1971) ini, murid mampu memahami informasi dengan lebih baik dengan menggabungkan unsur audio dan visual dalam sesuatu topik pembelajaran (Aryanto, 2021; Masitah et al., 2021) .

Penggunaan unsur audio dan video yang diintegrasikan dengan Teknik Mnemonik yang merupakan salah satu teknik kognitif yang mampu membantu murid mengingat walaupun murid terdiri daripada pelbagai tahap kognitif (Manalo et al., 2013; Mcnamara & Mcnamara, 2012; Mohd Jamil & Ab Halim, 2018). Bunyi yang ringkas atau pendek mampu memberi kesan terhadap kemampuan murid untuk mengingat sesuatu perkataan (Barrouillet et. al, 2020). Pengaplikasian Teknik Mnemonik secara '3 dalam 1' iaitu dengan mengaitkan 'bunyi huruf-bunyi aksi', 'imej huruf -imej aksi' dan 'bunyi *dengan* imej ' amat membantu murid mengingat terutamanya murid yang terdiri daripada pelbagai tahap kognitif dalam satu kelas.
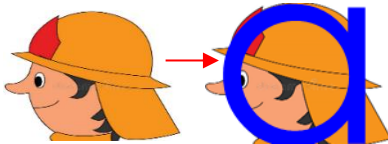
3.0   Objektif Kajian
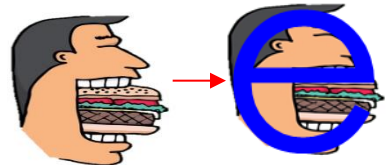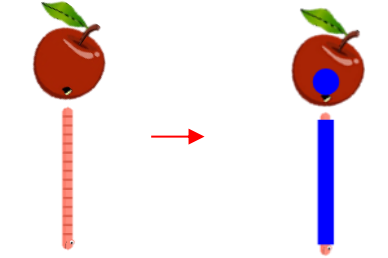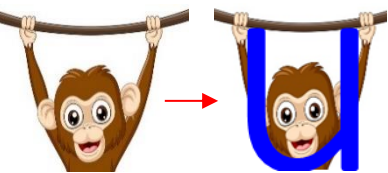
Berdasarkan penyataan masalah dalam kajian kemahiran mengenal huruf ini, objektif kajian ini adalah untuk melihat kesan intervensi Imej Mnemonik terhadap penguasaan huruf vokal murid prasekolah.

4.0   Metodologi Kajian

4.1   Reka Bentuk Kajian

Kajian tindakan ini menggunakan reka bentuk kuasi eksperimen yang terdiri kumpulan kawalan dan kumpulan rawatan. Bagi kumpulan kawalan, subjek kajian mengikuti pengajaran mengenal huruf vokal menggunakan kaedah pengajaran sedia ada iaitu memperkenalkan huruf dengan bunyi hadapan sesuatu perkataan manakala bagi kumpulan rawatan, subjek kajian mengikuti pengajaran mengenal huruf vokal menggunakan Imej Mnemonik. Kajian ini dilaksanakan dalam tempoh seminggu dalam waktu persekolahan bagi melihat sejauhmana intervensi mampu membantu murid mengingat atau menguasai kemahiran mengenal huruf vokal. Hasil dapatan data dipersembahkan dalam bentuk analisis deskriptif iaitu peratusan bagi melihat kesan intervensi terhadap penguasaan kemahiran mengenal huruf vokal. Jadual 1.1 menunjukkan pengajaran menggunakan intervensi Imej Mnemonik bagi memperkenalkan huruf vokal kepada murid.

Jadual 1.1: Penerangan Huruf Vokal Menggunakan Imej Mnemonik

Imej	Penerangan
	Huruf 'a' yang seakan sama dengan bentuk topi bomba yang sering dikaitkan dengan pekerjaan bomba memadamkan api atau kebakaran. Murid mengaitkan sebutan bunyi huruf 'a' dengan /aaaa/ seakan-akan sama dengan jeritan dalam situasi kebakaran. Maka, apabila murid melihat huruf 'a', secara spontan murid akan mengingat dengan membayangkan topi bomba dan jeritan /aaa/
	Huruf 'e' seakan sama dengan bentuk seseorang sedang makan *burger* yang dikaitkan dengan kenyang. Murid mengaitkan sebutan bunyi huruf 'e' dengan /eee/ seakan-akan sama dengan bunyi orang sendawa akibat kekenyangan. Maka, apabila murid melihat huruf 'e', secara spontan murid akan mengingat dengan membayangkan bentuk seseorang sedang makan burger dan bunyi sendawa /eee/.
	Huruf 'i' yang seakan sama dengan bentuk ulat dan lubang pada epal yang sering dikaitkan dengan aksi geli. Murid mengaitkan sebutan bunyi huruf 'i' dengan /ieee/ seakan-akan sama dengan bunyi orang kegelian. Maka, apabila murid melihat huruf 'i', secara spontan murid akan mengingat dengan membayangkan ulat dan lubang pada epal dan bunyi kegelian /ieee/.
	Huruf 'o' yang seakan sama dengan bentuk mulut seseorang apabila faham sesuatu. Murid mengaitkan sebutan bunyi huruf 'o' dengan /ooo/ seakan-akan sama dengan bunyi aksi seseorang ketika faham. Maka, apabila murid melihat huruf 'o', secara spontan murid akan mengingat dengan membayangkan mulut bentuk huruf 'o' dan bunyi aksi faham iaitu /ooo/ .
	Huruf 'u' yang seakan sama dengan bentuk tangan moyet bergayut. Murid mengaitkan sebutan bunyi huruf 'u' dengan /uuu/ seakan-akan sama dengan bunyi aksi monyet. Maka, apabila murid melihat huruf 'u', secara spontan murid akan mengingat dengan membayangkan monyet bergayut dan bunyi aksi monyet /uuu/.

4.2   Subjek Kajian

Kajian tindakan ini dilaksanakan terhadap 30 murid prasekolah di daerah Gemas, Negeri Sembilan. Subjek kajian ini diambil secara persempelan bertujuan yang terdiri daripada murid prasekolah yang berumur 5 hingga 6 tahun yang masih belum menguasai kemahiran mengenal huruf vokal. Bagi kumpulan rawatan, subjek mengikuti pembelajaran huruf vokal menggunakan intervensi Imej Mnemonik. Manakala bagi kumpulan kawalan, subjek mengikuti pembelajaran huruf vokal mengikut kaedah sedia ada guru di dalam kelas iaitu menggunakan bunyi hadapan sesuatu perkataan. Kajian ini dilaksanakan dalam tempoh 5 hari persekolahan.

4.3   Instrumen Kajian

Instrumen kajian ini dibina bagi melihat pencapaian murid terhadap kemahiran mengenal huruf sebelum dan selepas intervensi dilaksanakan. Ujian pra dilaksanakan sebelum intervensi yang bertujuan untuk memilih murid yang masih belum menguasai kemahiran mengenal huruf vokal sebagai subjek kajian manakala ujian pasca dilaksanakan setelah intervensi dilaksanakan bagi melihat peningkatan pencapaian subjek. Pembinaan instrumen ujian pra dan ujian pasca ini merujuk kepada Instrumen Literasi Kemahiran Bacaan Awal dan Instrumen Literasi Kemahiran Menulis Awal (LINUS) bagi konstruk 1 (a) yang merupakan konstruk yang menguji kemahiran mengenal huruf vokal. Terdapat dua jenis ujian yang dilaksanakan bagi setiap subjek iaitu ujian A memerlukan murid menunjuk huruf yang disebut oleh guru, manakala ujian B memerlukan murid untuk menyebut huruf yang ditunjuk oleh guru. Kedua-dua ujian ini menguji tahap kemampuan murid mengingat bunyi dan bentuk huruf dengan baik. Walaubagaimana pun, ujian B lebih mencabar kerana memerlukan murid memberi jawapan secara terus berdasarkan huruf yang ditunjuk oleh gurur berbanding ujian A yang membolehkan murid memilih jawapan berdasarkan senarai huruf yang diberikan.

4.4 Prosedur Kajian

Prosedur kajian ini dibahagikan kepada 3 peringkat iaitu sebelum, semasa dan selepas kajian. Sebelum kajian dilaksanakan, penyelidik, telah mencari seorang guru yang secara sukarela ingin menjalankan modul ini di dalam kelas. Kemudian, penyelidik menyerahkan modul, bahan bantu mengajar serta melaksanakan bengkel mengenai cara pengajaran menggunakan intervensi Imej Mnemonik dalam kemahiran mengenal huruf. Sebelum kajian dilaksanakan, ujian pra dilaksanakan bagi memilih murid yang masih belum menguasai kelima-lima huruf vokal sebagai subjek kajian kajian.

Semasa kajian berlangsung, guru melaksanakan 5 sesi pengajaran mengguna intervensi Imej Mnemonik dalam tempoh 20 minit sebelum masuk waktu pengajaran sebenar di dalam kelas. Setelah selesai 5 sesi pengajaran mengenal huruf, ujian pasca dilaksanakan secara lisan iaitu ujian A murid menunjukkan 5 huruf vokal yang disebut oleh guru secara rawak, Ujian B murid menyebut bunyi 5 huruf vokal yang ditunjuk oleh guru secara rawak. Setelah 5 hari sesi pengajaran mengunakan Imej Mnemonik dilaksanakan kesemua dapatan kajian diambil dan dicatatkan.

4.5 Data analisis

Data diperolehi menggunakan instrumen ujian pra dan ujian pasca. Ujian pra dijalankan bagi memilih murid yang belum menguasai huruf vokal sepenuhnya sebagai subjek kajian. Setelah intervensi dilaksanakan, penyelidik hanya ingin melihat sama ada berlaku peningkatan atau sebaliknya melalui ujian pasca. Hasil dapatan data dianalisis secara deskriptif menggunakan perisian SPSS *(Statistical Packages for the Social Sciences)* dan bentuk peratusan.

5.0   Dapatan Kajian

Jadual 1 menunjukkan bilangan murid serta peratus pencapaian penguasaan murid mengikut setiap huruf vokal bagi ujian A dan ujian B. Bagi ujian A, kumpulan kawalan, huruf u mencatatkan peratus peningkatan yang paling tinggi iaitu 60 peratus manakala huruf e mencatatkan peningkatan yang paling rendah iaitu 30 peratus. Bagi ujian B kumpulan kawalan, huruf u dan o menunjukkan peratusan penguasaan yang tinggi iaitu 60 % manakala huruf i menunjukkan peratus yang rendah iaitu sebanyak 30%. Bagi hasil dapatan data ujian A dan Ujian B kumpulan rawatan pula, kesemua huruf vokal dikuasai oleh subjek setelah menggunakan intervensi Imej Mnemonik dalam tempoh masa 5 hari. Ini membuktikan bahawa Imej Mnemonik berkesan dalam membantu murid mengingat seterusnya menguasai huruf vokal dalam tempoh masa 5 hari.

Jadual 1: Bilangan Murid Menguasai dan Peratus Menguasai Bagi Kumpulan Kawalan dan Kumpulan Rawatan.

Huruf	Bilangan Menguasai Kumpulan Kawalan (Bilangan Murid (N) / Peratus (%))				Bilangan Menguasai Kumpulan Rawatan (Bilangan Murid (N) / Peratus (%))			
	UJIAN A		UJIAN B		UJIAN A		UJIAN B	
	N	%	N	%	N	%	N	%
a	8	53	7	47	15	100	15	100
e	5	33	5	33	15	100	15	100
i	7	47	3	20	15	100	15	100
o	9	60	9	60	15	100	15	100
u	13	80	9	60	15	100	15	100

6.0   Perbincangan

Berdasarkan hasil dapatan kajian di atas membuktikan bahawa penggunaan Imej Mnemonik berkesan dalam membantu murid mengingat seterusnya menguasai huruf vokal dalam masa yang lebih singkat berbanding kaedah tradisional iaitu menggunakan bunyi hadapan sesuatu perkataan. Hasil dapatan kajian ini selari dengan

dapatan Moses et al., (2015) yang menyatakan bahawa penggunaan unsur audio dan visual yang saling berkaitan antara satu sama lain dapat meningkatkan ingatan murid terhadap sesuatu topik pembelajaran dengan lebih berkesan terutamanya untuk murid peringkat rendah (Mcnamara dan Mcnamara, 2012). Gabungan kedua-dua unsur ini mampu membantu murid memahami topik pembelajaran dengan lebih baik (Clark & Paivio, 1991;. N. Lee & Lee, 2021; Moses et al., 2015).

Selain itu, pemilihan bunyi imej yang paling ringkas sebagai cara untuk mengingat bunyi huruf merupakan salah satu cara membantu murid mengingat huruf dengan lebih baik. Ini kerana semakin pendek atau ringkas panjang sesuatu perkataan, semakin mudah untuk murid mengingat sesuatu perkataan secara lisan (Wang et. al ,2021; Rachmani, 2020). Dalam kajian Baddeley, Thomson dan Buchanan (1975) menemukan bahawa responden kajian sukar untuk mengingat kembali atau *recall* perkataan yang panjang berbanding perkataan yang pendek secara verbal. Ini kerana *sistem latihan artikulasi* iaitu sebagai suara dalaman akan mengulangi maklumat yang diterima daripada stor fonologi lebih kerap dalam satu tempoh masa bagi perkataan yang pendek berbanding perkataan yang panjang secara verbal agar maklumat tidak dilupakan sebelum selesai digunakan (Baddeley dan Hitch ,1974; Rachmani, 2020).

Kajian lepas juga membuktikan kesan penggunaan Teknik Mnemonik dalam membantu murid mengingat dan memahami sesuatu topik pembelajaran dengan lebih berkesan, sama ada pada peringkat rendah (Bawa & Fakomogbon, 2021; Masitah et. al, 2021; Aryanto , 2021), peringkat sekolah menengah (Pajriah & Budiman, 2017) mahu pun peringkat universiti (Sari, 2018). Teknik Mnemonik mampu mengurangkan beban kognitif murid untuk memahami sesuatu yang sukar menjadi lebih mudah (Nachiappan, 2013;). Walaubagaimana pun, guru memainkan peranan yang sangat penting dalam proses pemilih jenis mnemonik yang sesuai dengan sesuatu topik serta diri murid di dalam kelas (Aryanto , 2021, Muhammad, 2017).

7.0   Kesimpulan

Pengajaran mengenal huruf sering mengaitkan bunyi huruf dengan intervensi Imej Mnemonik berkesan untuk membantu murid yang terdiri daripada pelbagai tahap kognitif dalam menguasai huruf vokal tanpa perlu menghafal. Intervensi Imej Mnemonik berjaya membantu murid menguasai kesemua huruf vokal dalam masa yang singkat berbanding kaedah tradisional. Intervensi Imej Mnemonik ini boleh dijadikan sebagai modul pengajaran (panduan guru mengajar) bagi membantu permasalahan pengajaran guru dalam kemahiran mengenal huruf vokal terutamanya dalam kelas prasekolah, pemulihan, masalah pembelajaran dan tahap satu agar murid dapat menguasai kemahiran mengenal huruf dengan lebih awal dan menyeronokkan. Oleh kerana kajian ini hanya menekankan cara untuk membantu murid mengingat huruf secara cepat dan berkesan dari aspek bunyi dan bentuk huruf, namun aktiviti seperti menyurih, mengimplak huruf dan kolaj huruf dan sebagainya masih amat penting bagi meransang perkembangan psikomotor halus murid sebagai persediaan murid dalam menguasai kemahiran literasi kelak. Hasil dapatan kajian ini memberi impak positif dalam perkembangan kemahiran pendagogi guru. Diharapkan intervensi Imej Mnemonik ini mampu diaplikasikan dalam kalangan murid bermasalah pembelajaran kelak bagi mengatasi masalah literasi awal ini.

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Analisis Pencapaian Murid Dalam Menyelesaikan Masalah Pecahan Kemahiran Berfikir Aras Tinggi (Kbat) Berayat

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Abstrak

Pecahan merupakan salah satu topik Matematik yang perlu dipelajari oleh murid pada peringkat sekolah rendah. Namun penguasaan murid terhadap topik Pecahan masih berada pada tahap rendah. Penguasaan dan pengetahuan asas murid bagi topik ini amat penting dan perlu diberi perhatian. Hal ini kerana, murid tidak didedahkan dengan soalan serta latihan menyelesaikan masalah pecahan KBAT berayata. Justeru, kajian ini dijalankan untuk menganalisis pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat. Seramai 28 orang murid Tahun 4 dari sebuah sekolah di daerah Johor Bahru telah terlibat sebagai responden bagi kajian ini. Kajian berbentuk tinjauan ini menggunakan set ujian bagi topik Pecahan sebagai instrument kajian. Hasil analisis deskriptif mendapati bahawa pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat adalah pada tahap yang sederhana. Di antara empat aras KBAT Taksonomi Bloom semakan semula, aras menilai dan mencipta menunjukkan jumlah pencapaian murid yang rendah. Hal ini jelas membuktikan, pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat perlu diberi penekanan untuk mengatasi masalah ini.

Kata Kunci: Pencapaian, Pecahan, Soalan Berayat, Kemahiran Berfikir Aras Tinggi, KBAT

1.0 Pengenalan

Matematik merupakan salah satu mata pelajaran dalam Kurikulum Standard Sekolah Rendah (KSSR) di Malaysia. Standard pembelajaran merupakan salah satu komponen dalam dokumen standard KSSR dan menerangkan tahap dan kualiti

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kompetensi yang perlu dikuasai oleh murid. Tujuan KSSR ini diwujudkan adalah untuk merangsang perkembangan murid secara holistik (Pelan Pembangunan Pendidikan Malaysia, 2013-2025). Salah satu topik dalam subjek Matematik ialah Pecahan. Topik pecahan merupakan salah satu kemahiran penting yang perlu dititikberatkan dalam kurikulum Matematik kerana topik ini akan diaplikasikan dalam topik lain seperti peratusan, perpuluhan, jisim, algebra, geometri, dan sebagainya (Fazio, Kennedy & Siegler, 2016; Nur Farhana & Zakiah, 2014; Kor, Hoon, Mohamed & Singh, 2018). Walau bagaimanapun, pencapaian murid terhadap topik Pecahan masih berada pada tahap yang lemah (Tangkui & Keong, 2020; Nor Ezah & Nurulwahidah, 2017).

Pencapaian akademik merupakan salah satu elemen penting dalam menilai kemenjadian proses pengajaran (Hanita & Norzaini, 2018). Pencapaian akademik pelajar bergantung kepada kemahiran berfikir pelajar dalam menguasai konsep asas terutama apabila mempelajari Matematik. Kemahiran berfikir secara amnya merupakan aktiviti yang dilakukan oleh otak dalam mentafsir maklumat. Murid yang mempunyai kemahiran berfikir yang baik akan membolehkan seseorang murid untuk belajar secara kendiri dan berkembang mengikut tahap keupayaan mereka (Richeal, 2018).

Kemahiran berfikir merupakan salah satu elemen yang digariskan dalam Pelan Pembangunan Pendidikan Malaysia (PPPM) (PPPM, 2013). Kemahiran berfikir penting untuk dikuasai murid agar dapat bersaing di peringkat antarabangsa (Adnan, et. al., 2018; PPPM, 2013). Dalam konteks Pendidikan Matematik, penguasaan KBAT adalah penting termasuklah topik Pecahan yang diberi penekanan dalam kurikulum Matematik KSSR (Ahmad, Salim, & Zainuddin, 2004; Salleh, Saad, Arshad, Yunus & Zakaria, 2013; Thambi & Eu, 2013). Oleh itu, kajian ini bertujuan untuk menganalisis pencapaian pelajar dalam menyelesaikan masalah berkaitan topik Pecahan yang melibatkan soalan kemahiran berfikir aras tinggi (KBAT) berayat.

2.0 Latar Belakang Masalah

Berdasarkan dapatan kajian lepas, ramai murid sekolah rendah belum menguasai sepenuhnya topik Pecahan (Tambhi & Eu, 2013; Mohd Afifi, 2019; Idris & Narayanan, 2011; Lestiana, Rejeki & Setyawan, 2017). Menurut kajian Azura dan Effandi (2015), biarpun topik Pecahan telah diajar sejak Tahun Tiga, namun masih ramai murid yang tidak dapat menguasai topik tersebut. Hal ini menyebabkan pencapaian murid sekolah dalam topik Pecahan berada pada tahap yang rendah (Tangkui & Keong, 2020; Nor Ezah & Nurulwahidah, 2017). Tahap pencapaian murid yang rendah terhadap topik Pecahan juga dikatakan berpunca daripada oleh pemahaman konsep yang tidak jelas dan seterusnya mempengaruhi murid untuk melakukan kesalahan yang serupa (Salleh, Saad, Arshad, Yunus & Zakaria, 2013). Selain itu, penguasaan murid dalam menyelesaikan soalan yang melibatkan soalan berayat juga adalah lemah (Shara, Shah & Uzi, 2016; Augustine & Effandi, 2020). Murid perlu memahami dan mengeluarkan maklumat penting daripada soalan. Ini berikutan kaedah pengajaran konvensional yang masih berpusatkan guru di mana amalan latih tubi dan petua menghafal serta rumus yang ditekankan dalam pembelajaran kurang sesuai diaplikasikan oleh guru pada masa kini (Kassim & Zakaria, 2015; Shaik Ismail & Maat, 2017).

Teknik pengajaran seperti 'Chalk and talk' atau pengajaran konvensional berpusatkan guru kurang mampu membantu murid menjana kemahiran berfikir secara kreatif dan murid menghadapi kesukaran untuk menerangkan sesuatu perkara secara abstrak terutamanya dalam pembelajaran mata pelajaran Matematik (Nurfazliah, Jamalludin, Shaharuddin & Megat, 2015). Ini juga kerana kebergantungan kepada guru menjadi punca utama kegagalan murid menguasai kemahiran berfikir (Gani, 2018).

Menurut kajian Hazram dan Nurulain (2020), sesetengah guru keberatan untuk mengintegrasikan KBAT ke dalam pembelajaran Matematik. Dapatan ini disokong oleh Kassim dan Zakaria (2015), yang menyatakan guru tidak mengaitkan PdPc dengan KBAT kerana guru Matematik kurang bersedia untuk melaksanakannya (Shaik Ismail & Maat, 2017; Hazram & Nurulain, 2020). Hal ini menunjukkan

pengajaran guru sangat mempengaruhi prestasi KBAT (Ramli & Zakaria, 2015). Punca utama murid lemah dalam mata pelajaran Matematik dan tidak menguasai kemahiran berfikir kritis aras tinggi adalah kerana murid tidak dapat mengaitkan isi pembelajaran dengan kehidupan seharian mereka. Kementerian Pendidikan Malaysia mendapati antara kelemahan pengajaran guru ialah tidak menekankan elemen KBAT yang menyebabkan murid tidak dapat menggunakan kemahiran tersebut dalam menjawab soalan pentaksiran (Ramli & Zakaria, 2015).

3.0   Objektif Kajian

Terdapat dua objektif bagi kajian ini iaitu:

   i)   Menganalisis tahap pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat.
   ii)   Mengenal pasti tahap pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat bagi soalan aras mengaplikasi, menganalisis, menilai dan mencipta.

4.0   Metodologi Kajian

Kajian ini menggunakan pendekatan kuantitatif khususnya reka bentuk tinjauan. Kajian ini bersifat kajian secara deskriptif yang melibatkan pelajar dari sebuah kelas. Sampel kajian yang dipilih berpandukan jumlah responden yang diberikan oleh pihak sekolah tersebut. Seramai 28 orang murid Tahun 4 dari sebuah sekolah rendah di daerah Johor Bahru telah terlibat sebagai sampel kajian ini. Selain daripada itu, satu set ujian telah digunakan sebagai instrumen kajian ini. Set ujian ini terdiri daripada lapan soalan yang mengandungi keempat-empat aras tertinggi KBAT Taksonomi Bloom semakan semula iaitu aras mengaplikasi, menganalisis, menilai dan mencipta. Semua data yang dikumpul dianalisis dengan menggunakan analisis deskriptif untuk mengenal pasti pencapaian murid bagi topik Pecahan.

## 5.0	Dapatan Kajian

Data yang dikumpul melalui set soalan ujian dianalisis menggunakan perisian SPSS versi 25. Analisis deskriptif digunakan bagi menjawab dua objektif bagi kajian ini. Objektif kajian pertama menerangkan tahap pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat makanala objektif kajian kedua mengenal pasti taburan pencapaian murid mengikut empat aras tertinggi Taksonomi Bloom semakan semula iaitu aras mengaplikasi, menganalisis, menilai dan mencipta. Subtopik 5.1 dan 5.2 menunjukkan hasil dapatan bagi kedua-dua objektif yang terlibat dalam kajian ini.

## 5.1	Objektif 1: Menganalisis Tahap Pencapaian Murid dalam Menyelesaikan Masalah Pecahan KBAT Berayat

Hasil dapatan kajian bagi objektif yang pertama iaitu menganalisis pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat ditunjukkan dalam Jadual 1.

Jadual 1: Skor Tahap Pencapaian Murid bagi Soalan Pecahan KBAT Berayat

Markah	Frekuensi (%)	Tahap
0-5	1 (3.6%)	Sangat lemah
6-10	7 (25%)	Lemah
11-15	14 (50%)	Sederhana
16-20	5 (17.8%)	Baik
21-25	1 (3.6%)	Cemerlang

Jadual 1 menunjukkan tahap pencapaian murid bagi soalan Pecahan KBAT berayat. 75% bersamaan 21 orang daripada 28 orang murid berada pada tahap sederhana dan lemah manakala hanya 6 orang murid bersamaan 21.4% berada pada tahap baik dan cemerlang. Hal ini jelas menunjukkan, tahap pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat masih berada pada tahap rendah.

5.2   Objektif 2: Mengenal Pasti Tahap Pencapaian Murid dalam Menyelesaikan Masalah Pecahan KBAT Berayat bagi Soalan Aras Mengaplikasi, Menganalisis, Menilai dan Mencipta

Hasil dapatan kajian bagi objektif yang kedua iaitu mengenal pasti taburan pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat bagi soalan aras mengaplikasi, menganalisis, menilai dan mencipta ditunjukkan dalam Jadual 2.

Jadual 2: Taburan Pencapaian Murid Mengikut Aras Soalan Kemahiran
Berfikir Aras Tinggi (KBAT)

Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-3 f (%)	Markah Penuh (4) f (%)
1	Mengaplikasi	1 (3.5%)	5 (17.9%)	22 (78.6%)
Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-4 f (%)	Markah Penuh (3) f (%)
2	Mengaplikasi	15 (53.6%)	9 (32.1%)	4 (14.3%)
Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-3 f (%)	Markah Penuh (4) f (%)
3	Menganalisis	2 (7.1%)	7 (25%)	19 (68.9%)
4	Menganalisis	28 (100%)	0 (0%)	0 (0%)
Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-3 f (%)	Markah Penuh (4) f (%)
5	Menilai	3 (10.7%)	15 (53.6%)	10 (35.7%)
Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-2 f (%)	Markah Penuh (3) f (%)
6	Menilai	6 (21.4%)	22 (78.6%)	0 (0%)
7	Menilai	3 (10.7%)	23 (82.2%)	2 (7.1%)
Soalan	Aras Soalan	Markah 0 f (%)	Markah 1-3 f (%)	Markah Penuh (4) f (%)
8	Mencipta	16 (57.2%)	9 (32.1%)	3 (10.7%)

Berpandukan objektif kedua, aras mengaplikasi merupakan jumlah peratusan tertinggi murid memperoleh markah penuh iaitu sebanyak 78.6% (22 orang murid). Aras menilai dan mencipta antara peratusan terendah untuk memperoleh markah penuh oleh murid-murid tahun empat, iaitu sebanyak 7.1% bersamaan 2 orang murid yang memperoleh markah penuh bagi aras menilai dan 10.7% bersamaan 3 orang murid yang memperoleh markah penuh bagi aras mencipta. Berdasarkan data yang diperoleh, boleh disimpulkan bahawa pencapaian murid dalam menyelesaikan masalah pecahan KBAT berayat masih berada pada aras yang rendah. Pencapaian

murid masih berada pada aras mengaplikasi. Aras mengaplikasi merupakan aras terendah dalam empat aras tertinggi KBAT Taksonomi Bloom semakan semula.

6.0 Perbincangan Dapatan Kajian

Hasil dapatan kajian bagi objektif yang pertama menunjukkan bahawa seramai 8 (28.6%) orang murid berada pada tahap yang lemah dan sangat lemah dalam menyelesaiakan masalah Pecahan KBAT berayat. Sementara itu, seramai 14 (50%) orang murid berada pada tahap yang sederahana apabila menyelesaikan masalah Pecahan KBAT berayat manakala seramai 6 (21.4%) orang murid berada pada tahap baik dan sangat baik dalam menyelesaikan masalan Pecahan KBAT berayat. Secara kumulatif, 78.6% murid mempunyai skor pencapaian yang rendah dalam topik Pecahan. Hal ini memberi indikator bahawa murid mengalami kesukaran dalam menyelesaikan masalah Pecahan KBAT berayat. Hal ini selari dengan kajian yang dilakukan oleh Mohd Afifi (2019) dan Thambi dan Eu (2013), yang melaporkan bahawa murid sekolah rendah mempunyai kesukaran menyelesaikan soalan Matematik yang melibatkan soalan Pecahan. Dapatan kajian ini jelas menunjukkan guru perlu mewujudkan satu transformasi dalam kaedah pengajaran seperti menukarkan pengajaran berpusatkan guru kepada pengajaran berpusatkan murid melalui aktiviti pembelajaran berasaskan permainan dalam usaha membantu meningkatkan pencapaian murid dalam menyelesaikan masalah pecahan KBAT berayat.

Sementara itu, hasil dapatan kajian bagi objektif yang kedua pula menunjukkan bahawa ramai murid tidak dapat menjawab soalan KBAT aras mengaplikasi, menilai dan mencipta. Berdasarkan Jadual 2, seramai 15 (53.6%) orang murid tidak berjaya menjawab soalan 2 (aras mengaplikasi) manakala semua murid iaitu 28 (100%) orang tidak berjaya soalan 4 (aras menganalisis). Seterusnya, seramai 16 (57.2%) orang murid tidak berjaya menjawab soalan 8 (aras mencipta). Selain itu, seramai 1 (3.5%), 2 (7.1%), 3 (10.7%), 6 (21.4%) dan 3 (10.7%) orang murid tidak berjaya menjawab soalan bagi soalan 1, soalan 3, soalan 5, soalan 6 dan soalan 7

masing-masing. Hal ini membuktikan bahawa, murid berada pada tahap yang lemah dalam menyelesaikan masalah Pecahan KBAT berayat. Dapatan kajian ini selari dengan dapatakan kajian yang dilakukan oleh Ling dan Mahmud (2021). Selain itu, hal ini juga jelas memberi gambar bahawa murid tidak mempunyai kemahiran asas yang cukup menyebabkan mereka tidak dapat menyelesaikan soalan Pecahan KBAT berayat. Menurut Salleh, Saad, Arshad, Yunus dan Zakaria (2013), kurang pemahaman konsep dan sering mengulang kesalah yang sama dalam mata murid Matematik terutama bagi topik Pecahan menyebabkan tahap pencapaian murid adalah rendah. Oleh itu, guru-guru perlu menyediakan satu alternatif pengajaran yang efektif dan impak yang tinggi bagi membantu murid untuk menguasai topik Pecahan dan sekaligus boleh menjawab soalan kemahiran berfikir aras tinggi (KBAT). Kaedah pengajaran yang dapat mengaitkan pembelajaran dengan kehidupan seharian dapat memberikan kesan yang mendalam dan menyebabkan murid lebih mudah untuk memahami.

7.0 Kesimpulan

Kesimpulannya, pencapaian murid dalam menyelesaikan masalah Pecahan KBAT berayat adalah masih berada pada tahap sederhana. Justeru, guru Matematik khususnya, perlulah menyediakan pelbagai kaedah bagi meningkatkan pencapaian murid dalam menyelesaikan soalan berayat aras KBAT topik Pecahan. Guru-guru merupakan agen pemudah cara yang perlu membantu peningkatan penguasaan dan pencapaian murid terutama dalam pembelajaran Matematik. Di samping itu, pihak sekolah juga perlu bekerjasama dengan guru bagi memastikan guru-guru bersedia serta mempunyai kemahiran dalam usaha meningkatkan pencapaian murid.

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