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MINISTRY OF TOURISM, CREATIVE INDUSTRY AND PERFORMING ARTS SARAWAK

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ICOSSH 2023

3RD INTERNATIONAL CONFERENCE ON
**SCIENCE, SOCIAL SCIENCES AND HUMANITIES**

# EXTENDED ABSTRACT BOOK


**EDITORS:**

**ARYATY ALWIE, CHAN SIAW LENG, KO WEI LIONG, WOON WAI CHEONG, JOYCE MORRIS KAPONG, ANITA ROSLI, PETER CLARENCE CLUNY**


*Towards a Culture of Sustainability in Borneo*


http://icossh.upm.edu.my/

# INTERNATIONAL CONFERENCE ON SCIENCE, SOCIAL SCIENCES, AND HUMANITIES (ICOSSH 2023)

26 – 27 September 2023
Parkcity Everly Hotel, Bintulu, Sarawak, Malaysia

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# PREFACE

This book of extended abstracts compiles the diverse research presented at the International Conference on Science, Social Sciences, and Humanities (ICOSSH 2023). It showcases a range of topics, highlighting the interconnectedness of science, social sciences, and humanities in addressing today's complex global challenges.

The abstracts in this book offer concise insights into innovative studies and emerging trends across disciplines. The research reflects the conference's emphasis on interdisciplinary dialogue and collaboration, from scientific advancements to explorations of social dynamics and human behaviour. By sharing these works, we hope to foster new perspectives and inspire further research that can contribute to more holistic solutions for contemporary issues.

This collection would not have been possible without the dedication of many. We sincerely thank the authors for their valuable contributions and the reviewers for their thorough evaluations. Their efforts have ensured the academic quality and integrity of this publication.

As you explore these extended abstracts, we hope they spark new ideas and encourage ongoing discussion and collaboration. This extended abstract book records current research and is a stepping stone for future inquiry within and across disciplines.

# FOREWORD BY EDITOR-IN-CHIEF

Assalamualaikum Wrh. Wbt. and Salam Sejahtera.

Greetings to all esteemed participants, scholars, and attendees of the 3rd International Conference on Science, Social Sciences, and Humanities (ICOSSH 2023)!

As we embark on this intellectual journey under the theme of "Towards a Culture of Sustainability in Borneo," I am deeply honoured to offer my words of gratitude and appreciation. Dato' Professor Dr. Mohd Roslan Sulaiman's insightful words remind us of the urgency and importance of our collective mission to address the pressing challenges of our time. Prof. Dr. Shahrul Razid Sarbini's warm welcome underscores the significance of this symposium as a platform for interdisciplinary exchange and collaboration.

In the spirit of inclusivity and collaboration, ICOSSH 2023 encompasses a diverse range of sub-themes, spanning the domains of Science and Mathematics, Engineering and Technology, Humanities, Culture, Arts, Business, Economics, and Management. Our aim is to foster an environment where the boundaries between these disciplines blur, allowing for the emergence of innovative solutions that hold the potential to shape a more sustainable future, not just for Borneo but for our global community.

As we gather here to explore the intersection of science, social sciences, humanities, and sustainable practices, let us remember that our actions and decisions resonate far beyond this conference venue. May our discussions and discoveries at ICOSSH 2023 catalyse a culture of sustainability not only in Borneo but throughout the world, fostering a more harmonious coexistence with our planet and its diverse inhabitants.

As the Chief Editor, I would like to extend my deepest appreciation to the editing team for their dedication and expertise. Their meticulous work has ensured the quality and coherence of both the conference programme and the abstract book, elevating the content within to the highest standards of academic excellence. It is through their tireless efforts that we are able to engage in robust conversations, challenge preconceptions, and cultivate fresh insights. Their unwavering commitment to excellence, attention to detail, and passion for knowledge dissemination have brought us to this point.

I also want to express my heartfelt gratitude to all the participants, researchers, scholars, practitioners, and thought leaders who have contributed their expertise and knowledge to ICOSSH 2023. Your presence and active engagement are integral to the success of this symposium, and your commitment to advancing knowledge and promoting positive change is truly commendable.

Once again, thank you to the editing team, the organizing committee, and all participants for your invaluable contributions to this event. Together, let us celebrate knowledge, diversity, and the limitless potential of human endeavour.

Welcome to ICOSSH 2023, and may you have an inspired and transformative experience throughout the conference.

Warm regards,
Dr. Aryaty Binti Alwie
Chief Editor
Programme and Abstract Books
ICOSSH 2023

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# CORRELATION OF PARENTAL MARITAL CONFLICT, PARENT-ADOLESCENT RELATIONSHIP AND INTERNET ADDICTION AMONG ADOLESCENTS IN MALAYSIA

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## EXTENDED ABSTRACT

### Introduction

Malaysia experienced one of the longest COVID-19 lockdowns in the world with 61 weeks of school closure in comparison to Singapore 16 weeks of school closure (UNESCO, 2021). As such, there is growing concern among parents and educators on Internet addiction due to the reliance on the Internet for online learning has been inevitable. Another effect of the prolonged COVID-19 lockdown is the increased pressure on marriages and family relationships. Divorce rates increased since the onset of the pandemic, not just in Malaysia but worldwide. Thus, we are interested in studying the correlation between (1) perceived parental marital conflict and Internet addiction and (2) parent-adolescent relationship and Internet addiction among adolescents in Klang Valley, Malaysia. We hope to provide parents insight on how best to tackle Internet addiction, and also encourage educators to collaborate with parents

and families to harness the advantages of e-learning while minimising the risks of Internet addiction.

## Materials and Methods

### Participants

We surveyed 159 secondary school students (13-18) from various public, private, and international schools in Klang Valley, representing Malaysia's adolescent population.

### Design

This study used a quantitative cross-sectional correlational design , with a Likert scale questionnaire administered through both online and physical surveys.

### Procedure

#### *Online Survey*

We sent digital flyers with a Google Form link to parents of 13-18-year-olds via WhatsApp, Facebook and Instagram. Parents provided consent and signature, and then shared the link with their children to take the survey with their own consent and signature, ensuring the survey was completed without parental influence.

#### *Physical Survey*

We distributed explanatory statements to a high school in Klang Valley, Malaysia, briefed students on the anonymous and voluntary nature of the study, and required parental consent before students filled out the questionnaire. Teachers collected the physical forms after a week.

### Questionnaire

To address Ethics Committee concerns and sensitivity, we reviewed, simplified, and contextualised the questionnaires for younger adolescents.

### *Parental Marital Conflict Scale*

We assessed adolescent's perceptions of parental marital conflict using the Perceived Parental Marital Conflicts Scale (PMCS) by Wang (2004), which was revised to 22 questions Huang and Lin (2014) and reduced to 17 questions, with a 5-point Likert scale reflecting probability with 1 (Very Unlikely) to 5 (Very Likely).

### *Parent-Child Relationship Survey (PCRS)*

We used the Parent-Child Relationship Survey (PCRS), which originally had 24 questions and a 7-point Likert scale, to assess children's perception of the quality of their parent-child relationships (Fine et al., 1985). Our study was reduced to 18 questions and revised the scale to a 5-point Likert scale measuring frequency 1 (Never) to 5 (Always) or quality 1 (Very poor) to 5 (Excellent). Question 13 "How often do you get angry at your parents?" was scored in reverse.

### *Internet Addiction Test (IAT)*

The Internet Addiction Test (IAT) by Young (2014) originally had 20 questions but was reduced to 17 questions for younger adolescents, with a 6-point Likert scale of 0 (Not applicable) to 5 (Always). The categories were recalculated with a maximum score of 85 instead of 100, as shown in Table 1 below.

**Table 1**

*Recalculated IAT Category based on Revised IAT Questionnaire*

| IAT Category | Original IAT Sum | Revised IAT Sum |
|---|---|---|
| Normal | .00 – 30.00 | .00 – 25.50 |
| Mild | 31.00 – 49.00 | 26.35 – 41.65 |
| Moderate | 50.00 – 79.00 | 42.50 – 67.15 |
| Severe | 80.00 – 100.00 | 68.00 – 85.00 |

We collected data on adolescents' daily Internet usage, duration (less than 1 hour, 1-3 hours, 4-6 hours, 7 hours or above), device (desktop, laptop, tablet, smartphone) and purpose (social networking, gaming, audio or video entertainment, educational learning, shopping). Participants could select more than one device and purpose.

We collected demographic information, including age, gender, ethnicity, school name, parents' marital status and household income to represent Socioeconomic Status (SES). The household income was classified into 3 categories: B40 (bottom 40% with <RM6960), M40 (middle 40% with RM6960-RM14439), and T20 (top 20% with RM>14439) in the state of Selangor (Department of Statistics Malaysia, 2022).

**Compliance with Ethical Standards**

This study was approved by the Ethics Committee of Monash University Malaysia (project ID: 32699) and had obtained permission from required parents' consent and schools due to the participants being minors. Participation was voluntary, anonymous, and confidential. Results summary option was provided and counseling resources and hotlines were given to participants. No conflicts of interest were declared by the authors.

## Results

### Data Preparation

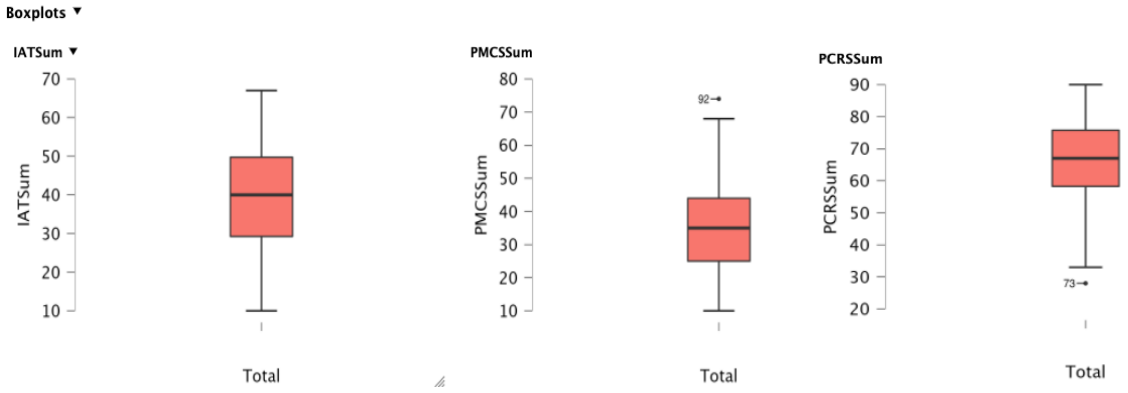
In total, 159 responses were collected, with 85 from physical surveys and 74 from online surveys. 20 responses in physical surveys had missing data, compared to none in online surveys due to a compulsory input rule. Missing demographic data was

entered as "unknown" to maximise the sample size. Schools were categorized as government, private, or international. Household income was coded as B40 (<RM6960), M40 (RM6960-RM14439), or T20 (>RM14439) to represent Socioeconomic Status (SES) in Selangor (DSM, 2022).

PMCSSum, PCRSSum and IATSum were calculated by summing Likert Scale for each questionnaire and participant. PMCSAvg and PCRSAvg were calculated by averaging the PMCSSum and PCRSSum, respectively (PMCSAvg = PMCSSum / 17, PCRSAvg = PCRSSum / 18). Boxplots revealed 2 outliers (Figure 1).

**Figure 1**

*Boxplots of Variable Data before Data Cleaning*




After removing these 2 outliers, 137 responses are valid for data analysis, refer to Table 2 below.

**Table 2**

*Sample Size Before and After Data Cleaning*

| Data Cleaning | Type | Variable Data | Gender | Race | Age | School Type | Parent's Marital Status | Household Income |
|---|---|---|---|---|---|---|---|---|
| Before | Valid | 139 | 159 | 159 | 159 | 159 | 155 | 145 |
| | Missing | 20 | 0 | 0 | 0 | 0 | 4 | 14 |
| | Outlier | 2 | - | - | - | - | - | - |
| After | Valid | 137 | 137 | 137 | 137 | 137 | 134 | 124 |
| | Missing | 0 | 0 | 0 | 0 | 0 | 3 | 13 |

The demographic data was also coded as 0 and 1 for multiple linear regression in Table 3 below.

**Table 3**

*Demographic Data Coding for Multiple Regression*

| Data | 0 | 1 |
|---|---|---|
| Daily Internet Usage | Less than or equal to 3hours, unknown | 4 hours and above |
| GenderC | Female | Male |
| RaceC | Chinese, Indian | Malay |
| AgeC | 13, 14, 15 | 16, 17, 18 |
| SchoolC | Private, International | Government |
| MaritalC | Divorced, Widowed, Unknown | Married |
| SESC | B40 | M40, T20, Unknown |

## Descriptive Statistics

### *Independent Variable (IV) (PMCS and PCRS) and Dependent Variable (DV) (IAT) Data*

Parental marital conflict is not very serious with mean of PMCSAvg 2.140 (median is 3). PMCSSum and PMCSAvg shows that they are not normal with p-values of Shapiro-Wilk <.001 and positively skewed with a skewness of .423, as shown in Table 4 and Figure 2 below. Rule of thumb suggests that skewness value of more than 2 may limit its use in some statistical analyses (Navarro et al., 2019). Therefore, PMCS data in this study can be considered not very skewed and data analysis was continued without further data transformation.

Participants on average have a slightly positive parent-adolescent relationship with mean of PCRSAvg 3.665 (median of 3). PCRSSum is not normal with p-values of Shapiro-Wilk .059 (very close to .05) and negative skewness of -.414, which means they are also slightly skewed. The average of adolescents can be classified as having

mild Internet addiction with mean of 39.898 per recalculated IATSum in Table 1. IATSum is a normal and symmetric distribution.

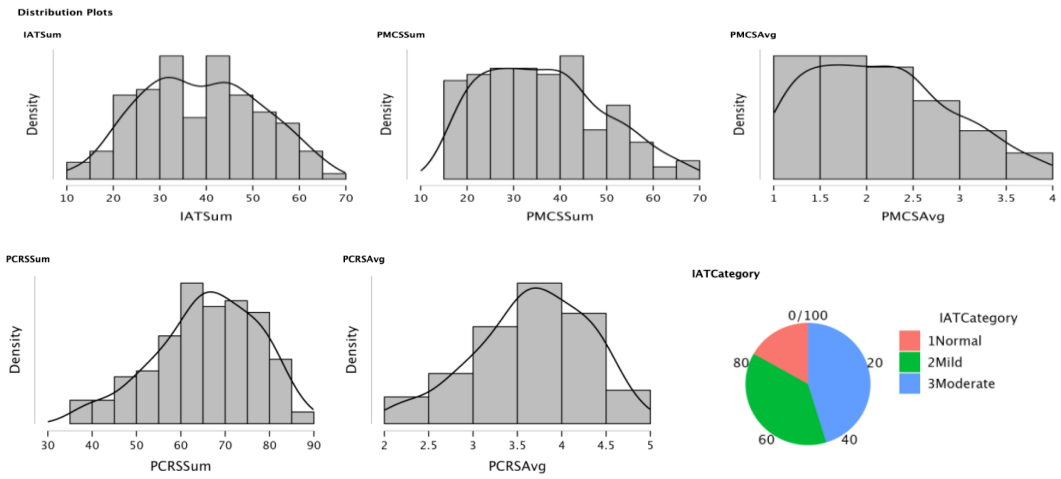
**Table 4**

*Variable Data Descriptive Statistics*

| | PMCSSum | PMCSAvg | PCRSSum | PCRSAvg | IATSum |
|---|---|---|---|---|---|
| Sample Size | 137 | 137 | 137 | 137 | 137 |
| Mean | 36.380 | 2.140 | 65.971 | 3.665 | 38.898 |
| Std. Deviation | 12.857 | .756 | 11.639 | .646 | 12.718 |
| Min | 17.000 | 1.000 | 36.000 | 2.000 | 10.000 |
| Max | 68.000 | 4.000 | 90.000 | 5.000 | 66.000 |
| Median | 35.000 | 2.060 | 67.000 | 3.720 | 38.000 |
| Skewness | .423 | .424 | -.414 | -.414 | .069 |
| Std. Error of Skewness | .207 | .207 | .207 | .207 | .207 |
| Kurtosis | -.618 | -.619 | -.241 | -.243 | -.737 |
| Std. Error of Kurtosis | .411 | .411 | .411 | .411 | .411 |
| Shapiro-Wilk | .963 | .963 | .981 | .981 | .985 |
| P-value of Shapiro-Wilk | < .001 | <.001 | .059 | .059 | .134 |

**Figure 2**

*Histogram of Variable Data and Pie Chart of IAT Category*



### *Demographic and Internet Usage Data*

Refer to Table 5 and Figure 3 below, 137 participants' demographic data is quite representative of Malaysia population in terms of gender, age, school type and parent marital status except race with Chinese 75% participants compared to 23% population due to convenient sampling by all 3 Chinese researchers contacting their extended family members and friends for the online survey (Statista, 2022). We suspect less participants (23%) from B40 due to poorer English proficiency in adolescents from lower SES and lower likelihood to fill up the survey.

**Table 5**

*Demographic Data Descriptive Statistics*

| Data | Name | Frequency | Percent | Cumulative Percent |
|---|---|---|---|---|
| Gender | Female | 84 | 61.314 | 61.314 |
| | Male | 53 | 38.686 | 100.000 |
| Race | Chinese | 103 | 75.182 | 75.182 |
| | Indian | 9 | 6.569 | 81.752 |
| | Malay | 25 | 18.248 | 100.000 |
| Age | 13 | 17 | 12.409 | 12.409 |
| | 14 | 30 | 21.898 | 34.307 |
| | 15 | 31 | 22.628 | 56.307 |
| | 16 | 37 | 27.007 | 83.942 |
| | 17 | 13 | 9.489 | 93.431 |
| | 18 | 9 | 6.569 | 100.000 |
| School Type | Government | 103 | 75.182 | 75.182 |
| | International | 13 | 9.489 | 84.672 |
| | Private | 21 | 15.328 | 100.000 |
| Parent's Marital Status | Divorced | 9 | 6.569 | 6.569 |
| | Married | 123 | 89.781 | 96.350 |
| | Widowed | 2 | 1.460 | 97.810 |
| | Unknown | 3 | 2.190 | 100.000 |
| SES Category | B40 | 32 | 23.358 | 23.358 |
| | M40 | 56 | 40.876 | 64.234 |
| | T20 | 36 | 26.277 | 90.511 |
| | Unknown | 13 | 9.489 | 100.000 |

**Figure 3**

*Pie Charts of Demographic Data*

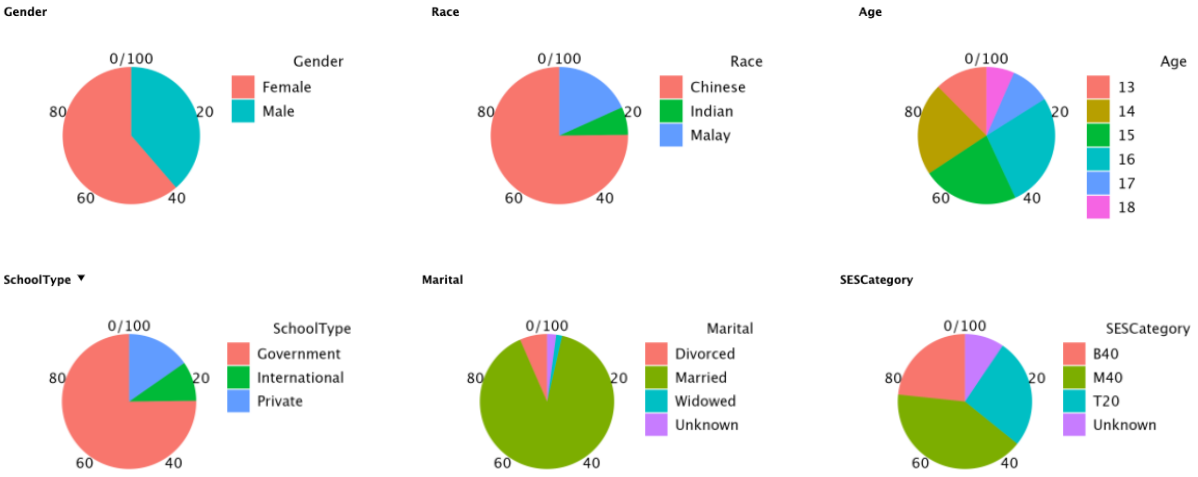



Figure 4 shows that smartphone (90%) is the most popular device and Entertainment (77%) is the most common purpose of Internet usage. Majority of the participants (53%) spend 4-6 hours on the Internet daily. (detailed data in Table 6 below).

**Figure 4**

*Internet Usage Data*

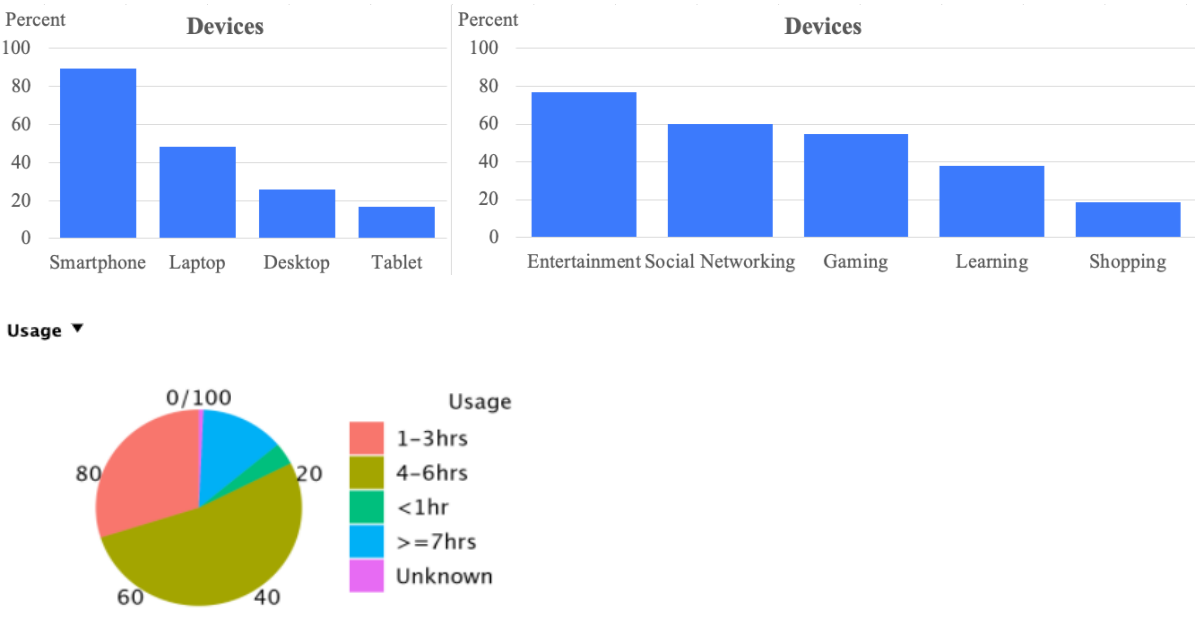


**Table 6**

*Internet Usage Data Descriptive Statistics*

| Internet Usage Data | Name | Ratio | Percent | Cumulative Percent |
|---|---|---|---|---|
| Devices | Smartphone | 122/136 | 89.706 | |
| | Laptop | 66/136 | 48.529 | |
| | Desktop | 35/136 | 25.735 | |
| | Tablet | 23/136 | 16.912 | |
| Purposes | Entertainment | 104/135 | 77.037 | |
| | Social Networking | 81/135 | 60.000 | |
| | Gaming | 74/135 | 54.815 | |
| | Learning | 51/135 | 37.778 | |
| | Shopping | 25/135 | 18.519 | |
| Daily Usage | Less than 1 hour | 5/136 | 3.676 | 3.676 |
| | 1-3 hours | 41/136 | 30.147 | 33.824 |
| | 4-6 hours | 72/136 | 52.941 | 86.765 |
| | More than 7 hours | 18/136 | 13.235 | 100.00 |
| IAT Category | Normal | 23 | 16.788 | 16.788 |
| | Mild | 52 | 37.956 | 54.745 |
| | Moderate | 62 | 45.255 | 100.000 |

## Primary Analysis and Results

### *Correlation*

Referring to Figure 5 and Table 7 below, all 3 hypotheses were proven with significant confidence with all 3 p-values less than .05. Instead of Pearson's r used for correlation on normal distribution data, Spearman's rho is used for the correlations on 2 slightly skewed data. The higher the parental marital conflicts (PMCSSum), the higher the Internet addiction (IATSum). Adversely, adolescents with better parent-adolescent relationships (PCRSSum) are less addicted to the Internet (IATSum). Though both PMCSSum and PCRSSum are independent variables in this study, they were negatively correlated with the highest Spearman's rho value.

**Figure 5**

*Correlation Plot on Variable Data*

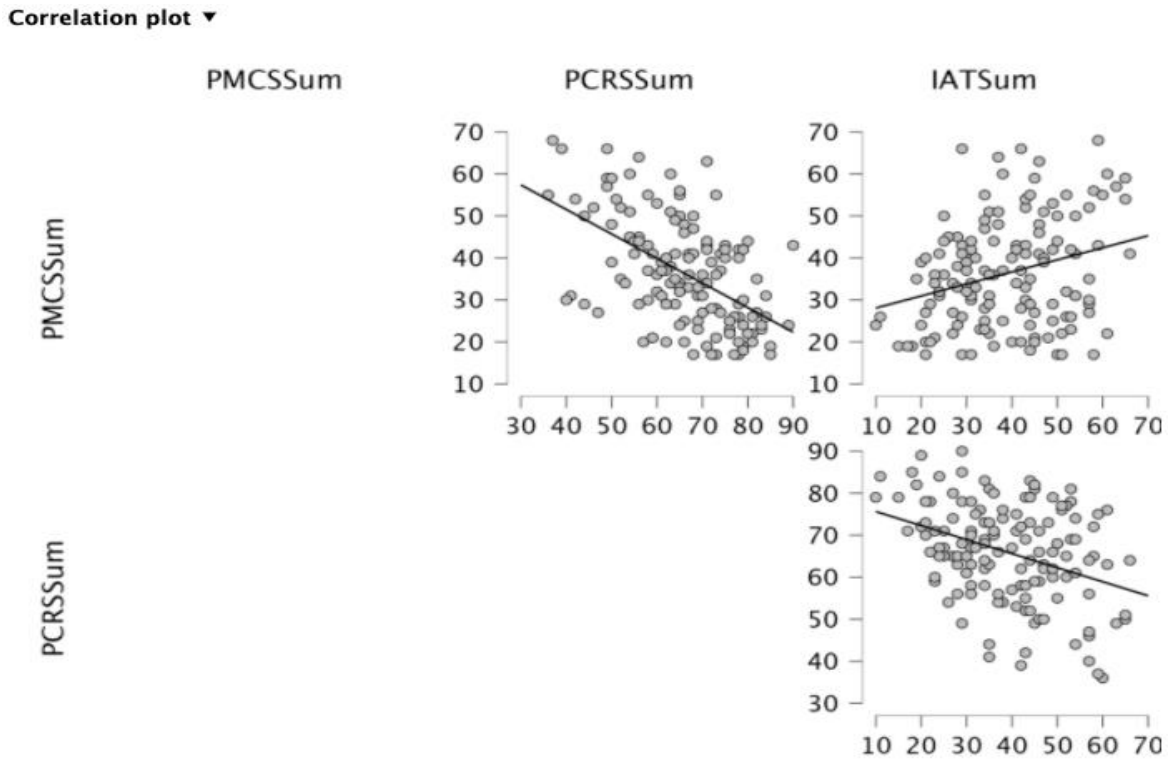



**Table 7**

*Spearman's Correlations on Variable Data*

| Variable | | PMCSSum | PCRSSum |
|---|---|---|---|
| PCRSSum | Spearman's rho | -.510*** | - |
| | p-value | < .001 | - |
| IATSum | Spearman's rho | .249** | -.317*** |
| | p-value | .003 | < .001 |

*Note.* *p < .05, **p < .01, ***p < .001

***Multiple Linear Regression***

Multiple linear regression is conducted to understand the relative contributions of PMCS, PCRS and demographic data on IAT, which is summarised in Table 8, 9, 10 and 11 below.

**Table 8**

*Model Summary - IATSum*

| Model | R | $R^2$ | Adjusted $R^2$ | RMSE |
|---|---|---|---|---|
| $H_0$ | .380 | .145 | .132 | 11.849 |
| $H_1$ | .546 | .298 | .249 | 11.024 |

*Note.* Null model includes PMCSSum and PCRSSum

**Table 9**

*ANOVA*

| Model | | Sum of Squares | df | Mean Square | F | p |
|---|---|---|---|---|---|---|
| $H_0$ | Regression | 3184.509 | 2 | 1592.255 | 11.342 | <.001 |
| | Residual | 18812.060 | 134 | 140.389 | | |
| | Total | 21996.569 | 136 | | | |
| $H_1$ | Regression | 6563.579 | 9 | 729.287 | 6.001 | <.001 |
| | Residual | 15432.991 | 127 | 121.520 | | |
| | Total | 21996.569 | 136 | | | |

*Note*. Null model includes PMCSSum and PCRSSum

**Table 10**

*Coefficients*

| Model | Unstandardized | Standard Error (SE) | Standardized | t | p |
|---|---|---|---|---|---|
| $H_0$(Intercept) | 55.882 | 9.102 | | 6.140 | <.001 |
| PMCSSum | .125 | .093 | .126 | 1.339 | .183 |
| PCRSSum | -.326 | .103 | -.299 | -3.171 | .002 |
| $H_1$(Intercept) | 44.076 | 9.815 | | 4.491 | <.001 |
| PMCSSum | .136 | .089 | .137 | 1.532 | .128 |
| PCRSSum | -.343 | .100 | -.313 | -3.425 | <.001 |
| UsageC (>= 4 hours) | 7.990 | 2.049 | .299 | 3.900 | <.001 |
| GenderC (male) | .724 | 2.019 | .028 | .358 | .721 |
| RaceC (Malay) | 3.813 | 2.621 | .116 | 1.455 | .148 |
| AgeC (16, 17 and 18) | -.288 | 2.021 | -.011 | -.142 | .887 |

| | | | | | |
|---|---|---|---|---|---|
| SchoolC (government) | 4.772 | 2.304 | .163 | 2.071 | .040 |
| MaritalC (married) | 3.068 | 3.211 | .073 | .956 | .341 |
| SESC (non-B40) | .049 | 2.336 | .002 | .021 | .983 |

**Table 11**

*Partial Correlations*

| **Model** | | **Partial** |
|---|---|---|
| $H_0$ | PMCSSum | .115 |
| | PCRSSum | -.264 |
| $H_1$ | PMCSSum | .135 |
| | PCRSSum | -.291 |
| | UsageC (>= 4 hours) | .327 |
| | GenderC (male) | .032 |
| | RaceC (Malay) | .128 |
| | AgeC (16, 17 and 18) | -.013 |
| | SchoolC (government) | .181 |
| | MaritalC (married) | .084 |
| | SESC (non-B40) | .002 |

$H_0$ model: IATSum = 55.882 + .125 PMCSSum - .326 PCRSSum

$H_1$ model: IATSum = 44.076 + .136 PMCSSum - .343 PCRSSum + 7.990 UsageC + .724 GenderC + 3.813 RaceC - .288 AgeC + 4.772 SchoolC + 3.068 MaritalC + .029 SESC

According to Cohen's guideline, $R^2$ value of .13 to .25 is considered medium effect while $R^2$ value of .26 and above is considered large effect (Navarro et al., 2019). The $H_0$ model that includes PMCSSum and PCRSSum has medium effect with $R^2$ of .145 while the $H_1$ model that includes all demographic data has a large effect with $R^2$ of .298 (refer to Table 8 above).

Refer to Table 10, the $H_0$ model shows that there is no association between PMCSSum and IATSum but there is strong negative association between PCRSSum

and IATSum. That means, parent-adolescent relationship is a stronger predictor of Internet addiction compared to parental marital conflict. The partial correlations show that when the parent-adolescent relationship is controlled, the correlation between parental marital conflict and Internet addiction is lower. Similarly, when parental marital conflict is controlled, the correlation of parent-adolescent relationship and Internet addiction is lower (refer to Table 11).

The $H_1$ model shows that the parent-adolescent relationship has the highest effect, followed by Internet of 4 hours or more and adolescents from government school. Internet addiction is independent of adolescents' gender, race, age, parental marital status and SES category with p-values of >.05. The partial correlation shows that the correlation of the independent variables to Internet addiction reduces, while the correlation of demographic data to Internet addiction generally increases when all other factors are controlled.

## Discussion

Consistent with our hypothesis, perceived parental marital conflict is positively correlated with Internet addiction, while parent-adolescent relationship is negatively correlated with Internet addiction. Results show that parent-adolescent relationship is a stronger predictor of Internet addiction than perceived parental marital conflict.

Past studies on high school students (Ko et al. 2015; Li et al. 2014; Wu et al., 2016; Yang et al., 2016) have found a positive association between parental marital conflict and Internet addiction, which our study supports. Family systems theory states that instability at home due to conflict increases the risk of problematic behaviors like addiction (Gao et al., 2018), and in the case of adolescents, this can lead to escapism

through the Internet, which is readily accessible (90% of adolescents in our study had access to a smartphone). Our findings show that the main reason for Internet use among adolescents are entertainment (77%) and social networking (60%) which are commonly used as a form of escapism.

Our findings support previous research by Huang et al. (2019) and Wang et al. (2018) who found a negative correlation between parent-adolescent relationship and Internet addiction. Our study uses a similar measurement of parent-adolescent relationship, despite a smaller sample size. Studies by Awaluddin (2019) and social control theory also suggest that a strong bond with parents reduces the risk of Internet addiction. In Klang Valley, Malaysia, where busy work schedules limit parent-adolescent bonding, our study found an average parent-adolescent relationship score just above the median. 65% of the participants in this study spend over 4 hours on the Internet daily and 83% have Internet addiction tendencies. This may suggest that adolescents seek connection and belonging through the Internet, leading to addiction.

Findings suggest that parent-adolescent relationship is a stronger predictor of Internet addiction than parental marital conflict, as shown in a similar study by Wei et al. (2020) in China. Results show a negative correlation between parental marital conflict and parent-adolescent relationship, with a bidirectional relationship between the two variables. This suggests that improving parent-adolescent relationships can lead to better management of Internet addiction and conflicts at home.

The study also found a correlation between Internet usage and addiction, with higher addiction rates in government schools. This could be due to long free time at home from shorter school hours compared to international and private schools.

## Conclusion

The results of this study are consistent with similar studies conducted in other countries like China and Hong Kong. The higher the perceived parental marital conflict, the higher the Internet addiction. While attempting to reduce adolescents' Internet addiction, parents should reflect on how their own marriage quality is affecting their adolescents. We encourage parents to be empathetic as their adolescents might be turning to the Internet as a means to escape from the stress of parental marital conflict. Acknowledging their struggle and collaborating in coming up with alternative and healthier coping mechanisms could be key in tackling their Internet addiction. Parents that focus on building a stronger relationship with their adolescent would have a positive impact on their Internet addiction. This may help parents who are overly focused on restricting Internet usage to refocus on bonding and connecting with their adolescent. This could be killing two birds with one stone as spending time with the adolescent would mean they would have less idle time to be on the Internet. Our results do show that Internet usage greatly predicts Internet addiction, the more time is spent on the Internet, the greater the risk of Internet addiction.

Another implication is for more family-based interventions in schools. School counsellors may work together with parents, potentially providing psychoeducational talks on how to manage marital conflict with the presence of an adolescent in the family and on how to communicate with their adolescents. With the high percentage of Internet addiction tendencies reported (83% showing mild to moderate addiction) and the high number of hours spent on the Internet (majority spend 4 – 7 hours daily), this study concurs that indeed this is an area that requires timely attention and intervention. The implications do not lie solely on the effects of Internet addiction itself

but also on what adolescents are missing out on because of long periods of time spent on the Internet (missing physical activities, social interactions etc.).

## References

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# PANDANGAN MAHASISWA UNIVERSITI KEBANGSAAN MALAYSIA (UKM) TERHADAP PILIHAN RAYA UMUM KE-15 (PRU-15), 2022 DI MALAYSIA

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## EXTENDED ABSTRACT

## ABSTRAK

Pilihan Raya Umum Malaysia ke-15 (PRU-15) telah berlangsung dengan baik namun diselubungi pelbagai persepsi daripada rakyat dan juga ahli politik. Buat pertama kali dalam sejarah bahawa tiadanya parti politik secara bersendiri berjaya menubuhkan kerajaan kerana kegagalan mendapat majoriti mudah 112 kerusi Parlimen. Akhirnya, atas nasihat Seri Paduka Baginda Yang Dipertuan Agong maka terbentuklah Kerajaan Perpaduan yang berPerdana Menterikan Dato' Seri Anwar Ibrahim dengan sokongan daripada 148 ahli Parlimen iaitu tepat majoriti 2/3 daripada keseluruhan 222 ahli Parlimen Malaysia. Oleh itu, adalah menjadi tujuan penulisan kertas kerja ini untuk menganalisis PRU-15 dari sudut pelaksanaan dan keputusannya. Data kuantitatif dan maklumat kualitatif dalam penulisan kertas kerja ini diperoleh dengan menggunakan

metod rujukan sumber primer iaitu soal selidik dan pemerhatian di lapangan manakala data sekunder pula diperoleh melalui rujukan sekunder terhadap bahan-bahan bercetak dan sumber atas talian yang berkenaan. Dapatan kajian menunjukkan bahawa 80 peratus responden bersetuju PRU-15 iniu diadakan pada tarikh yang telah ditetapkan oleh pihak Suruhanjaya Pilihan Raya (SPR). Seterusnya, 95 peratus responden bersetuju dengan pernyataan 'Pengundi sepatutnya menilai dan mempastikan kebenaran dan kerasionalan terlebih dahulu maklumat atau isu kempen dalam media sosial seperti Tik Tok dan sebagainya sebelum mempercayainya'. Berikutnya, 73 peratus responden berpuas hati dan menerima keputusan PRU-15 diadakan pada 19 November 2022 seadanya. Selain itu, 42 peratus responden menyatakan bahawa faktor pertimbangan rasional menjadi bentuk pertimbangan utama pengundi ketika mengundi dalam PRU-15. Perikatan Nasional (PN) juga memperoleh sokongan yang hebat serta diluar jangka daripada pengundi Melayu luar bandar di kawasan kubu kuat BN/UMNO kerana naratif kempen bahawa BN/UMNO merupakan parti yang tidak lagi bersih kepimpinannya dengan persetujuan 77 peratus. Faktor paling utama pengundi mengundi Perikatan Nasional (PN) dalam PRU-15 adalah dengan 28 peratus iaitu Kepimpinan PN yang bersih. Dengan dapatan ini maka politik pilihan raya di Malaysia terus dinamik dan maju kehadapan demi kestabilan dan keharmonian negara ini.

Kata kunci: Pilihan raya umum, Kerajaan Perpaduan, Pengundi, isu kempen, kepimpinan

# *THE VIEW OF STUDENTS' IN UNIVERSITI KEBANGSAAN MALAYSIA (UKM) AGAINST THE 15TH GENERAL ELECTION (GE-15), 2022 IN MALAYSIA*

## *ABSTRACT*

*The 15th Malaysian General Election (GE-15) went well but was shrouded in various perceptions from the people and politicians. For the first time in history that no political party alone managed to establish a government due to failure to get a simple majority of 112 parliamentary seats. Finally, on the advice of His Majesty the Yang Dipertuan Agong, a Unity Government was formed with Dato' Seri Anwar Ibrahim as Prime Minister with the support of 148 members of Parliament, which is exactly a 2/3 majority of the total 222 members of the Malaysian Parliament. Therefore, it is the purpose of writing this paper to analyze GE-15 from the point of view of its implementation and results. Quantitative data and qualitative information in the writing of this paper was obtained by using primary source reference methods, namely questionnaires and observations in the field, while secondary data was obtained through secondary references to printed materials and relevant online sources. The findings of the study show that 80 percent of respondents agree that the GE-15 will be held on the date set by the Election Commission (SPR). Next, 95 percent of respondents agreed with the statement 'Voters should first evaluate and ensure the truth and rationality of information or campaign issues in social media such as Tik Tok and so on before trusting it'. Next, 73 percent of respondents were satisfied and accepted the results of GE-15 held on 19 November 2022 as is. In addition, 42 percent of respondents stated that the factor of rational consideration became the main form of consideration for voters when voting in GE-15. Perikatan Nasional (PN) also gained*

*strong and unexpected support from rural Malay voters in BN/UMNO strongholds because of the campaign narrative that BN/UMNO is a party whose leadership is no longer clean with 77 percent approval. The most important factor for voters to vote for Perikatan Nasional (PN) in GE-15 is with 28 percent which is clean PN Leadership. With this finding, the election politics in Malaysia continue to be dynamic and move forward for the sake of the stability and harmony of this country.*

*Keywords: General election, Unity Government, Voters, campaign issues, leadership*

## Pengenalan

Malaysia salah sebuah negara yang menyambut baik sistem demokrasi berparlimen iaitu rakyat mempunyai hak dalam menentukan pemimpin mereka. Pemahaman mengenai politik di Malaysia bergantung kepada pengetahuan yang diperoleh rakyat. Sistem pilihan raya di Malaysia mula digerakkan pada tahun 1955 iaitu pada ketika itu kuasa politik yang utama adalah Pertubuhan Kebangsaan Melayu Bersatu (UMNO). Sepanjang bermulanya rentak demokrasi di Malaysia, pelbagai senario yang dapat disaksikan yang melibatkan calon pilihandan juga rakyat itu sendiri (Ab Rashid & G Manimaran 2021).

Namun begitu, di Malaysia pilihan raya akan dibuat setiap lima tahun apabila parlimen dibubarkan. Dalam sistem pilihan raya yang diamalkan di Malaysia, wakil calon di sesuatu bahagian di kawasan Parlimen dipanggil Pilihan Raya Umum (PRU) manakala di peringkat negeri dipanggil Dewan Undangan Negeri (DUN). Terdapat 222 kerusi bagi Dewan Rakyat (Parlimen) dan 567 kerusi bagi Dewan Undangan Negeri (DUN). Beberapa elemen penting pilihan raya yang terdapat dalam sistem pilihan raya iaitu bahagian pilihan raya, pemilih, calon dan proses pilihan raya (Astro Awani 2022).

Walau bagaimanapun, setiap kali musim pilihan raya bermula, maka pelbagai senario dan drama yang dapat disaksikan baik dalam kalangan calon pilihan mahupun rakyat itu sendiri. Perkara ini sudah tidak asing lagi dalam senario politik di Malaysia sehinggalah PRU-15 baru-baru ini.

Dalam pada itu, dalam menyakinkan rakyat untuk memilih calon pemimpin, mereka akan diberi kepercayaan atau dasar yang ingin dilakukan oleh parti politik tersebut. Erti kata lain dasar tersebut dipanggil "manifesto". Pilihan rakyat turut dipengaruhi dengan apa yang diperlukan oleh sesuatu kawasan tersebut seperti pembangunan dan pembaharuan di sesuatu tempat. Namun begitu, setiap perubahan yang dibuat oleh pemimpin parti politik sudah pasti akan berlaku beberapa perdebatan atau kekeliruan. Justeru, adalah menjadi tujuan penulisan artikel ini untuk mengkaji pengaruh program pembangunan terhadap pilihan politik pengundi di Kawasan Dewan Undangan Negeri (DUN) Chetok, Rantau Panjang, Kelantan.

## Kajian Lepas

Murray (2022a) dalam bab dalam buku yang bertajuk "No One Party Rule After GE-15" menyatakan bahawa selepas PRU-15, tidak akan ada parti politik secara bersendirian dapat membentuk Kerajaan Persekutuan. Ini kerana setiap parti politik kuat di kawasan tertentu sahaja seperti BN/UMNO di kawasan luar bandar, PH di kawasan bandar dan PAS di kawasan Pantai Timur Semenanjung Malaysia sahaja. Murray (2022b) dalam bab dalam buku yang bertajuk "GE15: The Coming Battle for the Malay Heartland" menyatakan bahawa undi Melayu akan menjadi penentu kepada kemenangan sejumlah kerusi Parlimen dan DUN dan akan mempengaruhi pembentukan kerajaan.

Sivamurugan (2022) dalam artikel yang bertajuk "PRU-15: Tinjauan Calon PM" menghujahkan bahawa kombinasi kematangan, kewibawaan, pengalaman dan interaksi komunikasi politik adalah ciri karekter penting sebagai Perdana Menteri pada PRU-15 khususnya oleh pengundi atas pagar. Agenda Massa (2022) dalam artikel yang bertajuk "Dari PRU-14 ke PRU-15" menjelaskan bahawa pelbagai peristiwa politiking yang berlaku antara PRU-14 ke PRU-15 yang menjadi perhatian pengundi untuk dijadikan isu atau faktor sokongan mereka pada PRU-15.

Junaidi (2022a) dalam artikel atas talian yang bertajuk "Mahu Pengundi Pilih Calon" menyatakan bahawa orang ramai di kawasan luar bandar, khususnya pengundi atas pagar sudah pasti tertarik disebabkan mereka lebih melihat kepada pengalaman dan sumbangan dilaksanakan calon, selain lebih memilih pemimpin calon tempatan. Junaidi (2022b) dalam artikel atas talian yang bertajuk "INTERACTIVE: In GE15s battle for rural seats, here is what you need to know" menyatakan bahawa terdapat dua isu besar bagi ramai pengundi luar bandar Melayu di Semenanjung Malaysia iaitu politik pembangunan dan politik identiti (etnik dan agama). Pengundi bandar, sebaliknya, lebih terpengaruh dengan politik nilai yang didorong oleh isu seperti rasuah, integriti dan akauntabiliti.

Junaidi (2022c) dalam artikel jurnal yang bertajuk "Parti Keadilan Rakyat (PKR) Dalam Pilihan Raya Umum dan Pemilihan PKR 2022: Impak dan Masa Hadapan Dalam Geopolitik Malaysia" menyatakan bahawa prestasi PKR dalam PRU 1999-2018 bersifat turun naik berdasarkan kepada isu semasa dan keyakinan pengundi terhadap kepimpinan PKR. Keputusan pemilihan dalaman PKR 2022 pula menunjukkan bahawa ahli PKR memilih pemimpin yang berpengalaman, kompeten dan teguh dalam

pentadbiran sebagai kerajaan serta pemimpin yang beridealisme, berpandangan jauh, bervisi dan bebas dalam bertindak ketika berpolitik.

Junaidi (2022d) dalam artikel jurnal yang bertajuk "Geopolitik Wanita Dalam Politik Pilihan Raya Malaysia" menyatakan bahawa wanita sememangnya berperanan atau berpengaruh dalam menentukan geopolitik di Malaysia meskipun tidak dapat menguasai secara majoriti atau sepenuhnya dari segi penentuan calon dan pembuatan keputusan di negara ini. Wanita berperanan sebagai pengundi, perayu undi, jentera kempen, objek untuk meraih undi (kecantikan wajah dan kelembutan bersuara), ahli parti politik, penceramah parti politik, ahli strategi parti politik, penasihat kepada suami sebagai pemimpin, kepimpinan dalam parti politik, calon dalam pilihan raya, wakil rakyat dan sebagai pemimpin utama dalam kerajaan.

Mohammad Qayyum (2022) dalam buku yang bertajuk "Anwar Ibrahim PM10" menyatakan bahawa karisma dan pengaruh Anwar akan menjadi taruhan beliau sebagai PM10 untuk mengemudi Malaysia ke landasan yang baik untuk memulihkan ekonomi dan politik negara ini. Anwar (2022) dalam buku yang bertajuk "Membangun Negara Madani: Visi dan Kerangka Dasar Reformasi" menghuraikan bahawa dasar kerajaan Malaysia yang digubal perlu lebih manusiawi dan mempunyai saling hubung antara komponen dalam pembangunan. Sejarah dan latar belakang sosioekonomi Malaysia yang panjang dan pelbagai perlu diambil kira dalam pembentukan dasar awam negara.

Muhammad Yusri (2022) dalam artikel akhbar yang bertajuk "PRU15: Pola undi popular berubah secara signifikan" menyatakan bahawa trend pengundian pada Pilihan Raya Umum Ke-15 (PRU-15) menyaksikan perubahan pola undi popular yang menyaksikan graf populariti setiap gabungan parti politik turun naik secara signifikan.

Keadaan tersebut dikatakan disumbang kelompok majoriti senyap yang lebih tertumpu untuk membuat perbandingan tanpa pembabitan secara langsung dan jelas, termasuk di platform media sosial. Keadaan itu antara lain dikatakan turut dibayangi faktor penolakan terhadap parti atau calon tertentu, selain didorong sentimen diketengahkan sepanjang tempoh berkempen.

Popularitи PAS dilihat lebih terserlah, berbanding gabungan atau parti politik lain yang bertanding pada PRU-15. Popularitи PAS antara lain berjaya membentuk 'tsunami politik hijau' yang mengalihkan perhatian, terutama pengundi muda untuk menyokong parti Islam itu. Pencapaian PAS lebih ke hadapan apabila berjaya menawan 49 kerusi pada PRU-15, berbanding hanya menang di 18 kerusi Parlimen pada PRU-14. Prestasi parti politik yang meningkat dalam PRU-15 adalah BERSATU (PRU 2018 dengan 13 kerusi; PRU 2022 dengan 30 kerusi) dan GPS (PRU 2018 dengan 18 kerusi; PRU 2022 dengan 23 kerusi). Parti lain mencatatkan prestasi yang menurun iaitu UMNO (PRU 2018 dengan 54 kerusi; PRU 2022 dengan 28 kerusi); DAP (PRU 2018 dengan 42 kerusi; PRU 2022 dengan 40 kerusi); PKR (PRU 2018 dengan 47 kerusi; PRU 2022 dengan 31 kerusi) dan AMANAH (PRU 2018 dengan 11 kerusi; PRU 2022 dengan 8 kerusi).

Mohd Azhar & Kassim (2022) dalam artikel akhbar yang bertajuk ”Naratif 'kaum dan agama' mampu gugat agenda perpaduan nasional” menyatakan bahawa’ naratif 'kaum dan agama' masih relevan serta menjadi senjata utama untuk meraih sokongan khususnya dalam kalangan pengundi atas pagar dan pengundi muda. Dengan pertambahan jumlah undi baharu dan Undi18 hingga hampir 7 juta, naratif itu kerap tersiar di media sosial hingga menjadi alat indoktrinisasi berkesan. Kebanyakan kajian menunjukkan media sosial menjadi medium utama golongan itu memperoleh sumber

maklumat politik. Apatah lagi, jika sesuatu maklumat dan gambar disiar atau ditonton berulang-ulang kali hingga akhirnya tanpa panduan dan bimbingan betul, golongan itu akan menerima apa saja disuapkan. Memang pelik naratif 'kaum dan agama' masih menjadi modal dan senjata pada era teknologi digital ini. Isu sensitif inilah antara sebab perubahan 'tsunami sokongan' pengundi.

Sehari dua sebelum hari pengundian Sabtu lalu, naratif itu semakin keras dan bertubi-tubi menerjah pelbagai saluran media sosial. Sebenarnya, Akta Suruhanjaya Pilihan Raya (SPR) antara lain menyebut mana-mana individu, parti atau blok politik tidak dibenarkan menggunakan isu sensitif secara terbuka yang boleh menjejaskan ketidaktenteraman awam. Situasi ini amat aktif di media sosial sepanjang dua minggu tempoh berkempen, malah berterusan hingga kini. Pemimpin politik dan pencipta kandungan dengan berani mengangkat naratif agama dan kaum serta menyebarluaskannya di media sosial. Mereka memainkan isu kedaulatan Raja-Raja Melayu, Kristianisasi dan hak istimewa orang Melayu sebagai bahan kempen menarik pengundi, sedangkan semua isu utama kenegaraan tidak boleh diubah tanpa persetujuan Parlimen, Yang di-Pertuan Agong dan Majlis Raja-Raja (MRR).

Justeru, pihak bertanggungjawab seperti SPR dan pihak berkaitan perlu sensitif dengan apa berlaku. Mereka perlu responsif dan bertindak kepada semua pihak sengaja menimbulkan isu sensitif berbaur agama dan kaum. Jika tidak dicegah dan dibiarkan berlarutan, defisit sosial antara kaum akan terus melebar. Malah setiap kali menjelang PRU, isu dan sentimen sama diyakini akan terus diulang sebagai indoktrinasi. Malaysia sudah merdeka selama 65 tahun, malah Ogos 2022, kita menyambut Hari Kemerdekaan dengan tema 'Keluarga Malaysia Teguh Bersama.'

Meskipun berbeza ideologi dan parti politik, kita perlu memartabatkan agenda perpaduan nasional serta berpolitik secara sihat dan profesional.

Nik Nazmi (2023) dalam buku yang bertajuk "Anak Malaysia: Sebuah Perjalanan Politik Progresif" menyatakan bahawa beliau telah mengharungi pelbagai onak dan ranjau dalam berpolitik sebagai pemimpin PKR dengan terpilih sebagai ADUN dan ahli Parlimen dan berjaya memenangi jawatan Naib Presiden PKR Pusat. Semua pengalaman tersebut memberi pengalaman yang berharga kepada beliau yang berkhidmat demi rakyat Malaysia.

Shah Mohd Akmal (2023) dalam artikel yang bertajuk "54 Tahun Meniti Perjuangan yang Panjang" menyatakan bahawa Dato' Seri Anwar Ibrahim merupakan seorang ahli politik Malaysia yang panjang perjalanan politiknya iaitu sejak tahun 1968 sebagai pemimpin gerakan pelajar, menyertai ABIM, menyertai UMNO, sehinggalah menyertai PKN/PKR dan berjaya menjadi Perdana Menteri dalam PRU-15, 2022. Beliau dilihat seorang ahli politik yang teruji, kuat, tahan lasak, kental, tabah, sabar, tidak putus asa dalam usaha mencapai cita-cita politiknya.

Noordin (2023) dalam artikel yang bertajuk "PAS Lencongkan Undi Anak Muda" menjelaskan bahawa pada PRU-15, 2022, PAS berjaya mendapat sokongan luar biasa daripada pengundi muda disebabkan mereka inginkan pemimpin dan parti politik yang bersih dari rasuah dan penyelewengan, keberkesanan tagline BEST (Bersih dan Stabil) dan Prihatin, naratif sentimen Melayu-Islam yang dimainkan parti tersebut, pengaruh Tik Tok melalui kempen yang berkesan dan *influencer* yang pro-PAS, dan jentera kempen PAS/PN yang agresif termasuk mengesan pengundi luar terutamanya pengundi muda dan yang tinggal di universiti untuk pulang mengundi.

Osman (2023) dalam artikel yang bertajuk "Kerajaan Perpaduan: Cabaran Untuk PM ke-10" menyatakan bahawa Kerajaan Perpaduan yang terbentuk pasca PRU-15 pimpinan Dato' Seri Anwar Ibrahim bakal menghadapi cabaran untuk menyatukan parti politik yang pelbagai ideologi dan aspirasi dalam kerajaan tersebut serta suara lantang 74 ahli Parlimen pembangkang iaitu PN yang bakal menjadi suara 'sekat dan imbang' dalam politik negara ini. Ronifira (2023) dalam buku yang bertajuk "Anwar PM10: Airmata dan Sumpah, Duri dan Ranjau Sebuah Perjalanan" menyorot hampir 32 tahun Dato' Seri Anwar Ibrahim menempuh pelbagai rintangan, cabaran, dugaan dan air mata untuk berjuang menjadikan Malaysia sebuah negara yang terbilang sehinggalah beliau berjaya menjadi Perdana Menteri Malaysia pada 24 November 2022.

Mohd Sayuti (2023) dalam buku yang bertajuk "Noktah. Sebuah Penantian Anwar PM 10" menjelaskan bahawa Dato' Seri Anwar Ibrahim tidak pernah lelah dan berputus asa dalam menanti kerusi keramat Perdana Menteri Malaysia. Beliau satu-satunya ahli politik Malaysia yang paling teruji, kental dan tabah dengan berjaya dalam politik sebagai Timbalan Perdana Menteri, dipecat, dipenjarakan, diaibkan, dihina, dicemuh dan akhirnya beliau mengangkat sumpah sebagai Perdana Menteri Malaysia ke-10 pada 24 November 2022.

Mohd Noor (2023) dalam makalah yang bertajuk "Perkembangan Politik Malaysia Pasca PRU-15" menjelaskan bahawa tiada yang mustahil dalam politik, bagaimana PH boleh bekerjasama dengan BN dan UMNO boleh bekerjasama dengan DAP dan Anwar. Namun, percaturan kuasa hasil nasihat Raja-Raja Melayu maka terbentuklah Kerajaan Perpaduan antara PH dan BN lantaran tiadanya parti politik tunggal yang berjaya mendapat 112 kerusi mudah Parlimen. Politik merupakan seni

yang serba mungkin berasaskan usaha untuk mendapatkan kuasa, menekalkan kuasa dan menggunakan kuasa. Logik dan etika normal tidak dapat digunakan sepenuhnya dalam analisis politik Malaysia pasca PRU-15. Dalam politik tidak ada musuh dan kawan yang kekal. Asas percaturan utama berpaksikan kuasa yang bakal digenggam. Demi mendapatkan kuasa dan mengekalkan kuasa, percaturan antara parti politik, kerjasama dan sebarang pakatan boleh berlaku. Perkara yang berlaku dalam parti politik selepas PRU-15 merupakan sebahagian daripada fenomena biasa aktor politik yang hanya boleh difahami dengan mendalam oleh pelaku, pengamal dan penganalisis politik.

Agenda Massa (2023a) dalam artikel yang bertajuk 'Perkahwinan' Politik Luar Biasa menjelaskan bahawa keputusan PRU-15 2022 telah membuka satu pemetaan politik baharu apabila buat pertama kali dalam sejarah bahawa tiada satupun parti politik secara tunggal berjaya mendapat majoriti mudah 112 kerusi parlimen dan ini menyebabkan pembentukan satu Kerajaan Perpaduan yang merentas parti yang perbagai idealogi dan kewilayahan.

Junaidi (2023a) dalam artikel jurnal yang bertajuk "Pilihan Raya Umum Malaysia ke-15: Pola Sokongan Pengundi Berdasarkan Faktor Kewilayahan" menjelaskan bahawa PH terus menguasai wilayah Pantai Barat Semenanjung Malaysia serta di Sabah serta Sarawak di kawasan bandar dan separa bandar campuran etnik dan majoriti Cina, PN menguasai wilayah Pantai Timur dan Utara serta sebahagian kecil di Barat dan Selatan Semenanjung Malaysia di kawasan luar bandar majoriti Melayu iaitu di zon Semenanjung Pantai Timur iaitu Kelantan, Terengganu dan Pahang Timur serta Pahang Tengah; Utara Semenanjung iaitu Perlis dan Kedah serta Pulau Pinang Seberang Prai Utara dan Tengah, Perak Utara, Perak Tengah; sebahagian

Barat Semenanjung iaitu Utara Selangor dan Barat Selangor serta Barat Melaka dan Selatan Melaka manakala BN kekal berkuasa di kawasan luar bandar tengah Semenanjung Malaysia namun dengan jumlah kerusi yang menyusut. Justeru, pengaruh kewilayahan turut mempengaruhi pola pengundian dan perlu diambil perhatian oleh pihak yang berkenaan untuk melaksanakan strategi kempen bagi mendapat sokongan daripada pengundi di kewilayahan berkenaan.

Noor Azam (2023) dalam artikel yang bertajuk 'Kepimpinan Tunjang Pembentukan Malaysia Madani' menjelaskan bahawa makna istilah madani yang diperkenalkan oleh YAB Perdana Menteri Malaysia ke-10 Dato' Seri Anwar Ibrahim memerlukan penelitian yang menyeluruh. Hal ini demikian kerana istilah madani merangkumi semua aspek kehidupan dalam konteks manusiawi yang melibatkan kehidupan manusia sebagai anggota masyarakat, komuniti serta sebagai anggota dalam sebuah negara yang ditunjangi oleh pemimpin negara yang berwibawa dan terpilih.

Junaidi (2023b) dalam artikel jurnal yang bertajuk "PRU-15: Tiadanya Parti Politik Yang Menang Majoriti Mudah 112 Kerusi Parlimen Untuk Membentuk Kerajaan Persekutuan Malaysia" menjelaskan bahawa keputusan PRU-15, 2022 menunjukkan tiadanya satu parti tunggal berjaya mendapat majoriti mudah 112 kerusi untuk menguasai Parlimen dan Kerajaan Persekutuan. Keputusan ini disebabkan kegagalan BN untuk memenangi majoriti mudah akibat peralihan besar undi Melayu kepada PN. Peralihan besar undi ini berfaktorkan kepada kesedaran pengundi Melayu untuk memilih parti politik dan pemimpin yang bersih dan dapat diharapkan memperjuangkan hak orang Melayu dan Islam. Hasil kebijaksanaan titah serta nasihat Baginda Yang Dipertuan Agong maka terbentuklah Kerajaan Perpaduan daripada 148

ahli Parlimen iaitu majoriti 2/3 daripada 222 ahli Parlimen Malaysia yang terdiri daripada PH, BN, GPS, GRS, WARISAN, KDM, PBM dan 2 orang ahli Parlimen Bebas. PN (74 ahli Parlimen) tidak menyertai Kerajaan Perpaduan dan bertindak menjadi pembangkang. Dengan itu juga, Dato' Seri Anwar Ibrahim daripada PH telah dilantik sebagai Perdana Menteri Ke-10.

Krishnamoorthy (2023) dalam buku yang bertajuk 'Anwar Prison to Palace PM for All' menjelaskan Anwar Ibrahim telah melalui pelbagai liku dan cabaran dalam berpolitik termasuk dipenjarakan dan akhirnya dalam kemelut politik pasca PRU 2022 maka beliau berjaya menjadi Perdana Menteri dengan mendapat mandat kukuh 148 ahli Parlimen atau 2/3 daripada 222 ahli Parlimen. Justeru, kuasa di tangan beliau maka inilah masanya untuk beliau membantu rakyat dan negara untuk bangkit daripada pemulihan era pandemik COVID-19 yang sangat mencabar.

Business Today (2023) dalam artikel yang bertajuk 'Anwar Ibrahim 100 Days Report Card: Pass of Fail?' menjelaskan bahawa terdapat banyak pembaharuan yang diperkenalkan beliau sepanjang 100 hari pemerintahannya dengan pembentukan Kerajaan Perpaduan, Malaysia Madani, Produk Rahmah dan sebagainya. Meskipun bersifat jangka pendek namun beliau perlu diberi peluang sekurang-kurangnya 2 penggal iaitu 10 tahun untuk membawa Malaysia ke landasan yang terbaik dari segi ekonomi, sosial dan politik.

Agenda Massa (2023b) dalam artikel yang bertajuk 'Belanjawan 2023: Membangun Malaysia Madani' menjelaskan bahawa belanjawan pertama kali Dato' Seri Anwar Ibrahim sebagai Perdana Menteri dan juga Menteri Kewangan adalah belanjawan yang tertinggi dalam sejarah belanjawan negara iaitu RM388.1 billion. Belanjawan ini adalah penting untuk memastikan agar negara bangkit daripada

kemelesetan ekonomi akibat wabak pandemik COVID-19 pada awal 2020 bagi memastikan rakyat dalam hidup dengan sejahtera dan terus bertahan dalam tempoh ekonomi dunia yang tidak menentu sepanjang tahun 2023.

## METOD KAJIAN

Bagi menyempurnakan penyelidikan ini, pengkaji telah menggunakan dua jenis sumber data iaitu sumber data primer dan sumber data sekunder. Sumber data primer ialah sumber maklumat yang diperoleh melalui kajian lapangan. Sumber ini adalah terhad. Oleh hal yang demikian, penggunaan sumber data sekunder sangat penting untuk menyokong dan mengukuhkan lagi dapatan yang diperoleh daripada data primer. Namun, sumber data sekunder tersebut mestilah sahih dan dalam kategori sumber yang ilmiah seperti bahan pustaka, buku dan jurnal. Berikut merupakan metod kajian yang digunakan bagi mencapai objektif kajian. Data juga terdiri daripada dua jenis iaitu data kualitatif dan data kuantitatif. Menurut Izham (2008), data kualitatif adalah butiran maklumat yang dinyatakan dalam bentuk pendapat, pandangan seseorang atau ia juga dalam bentuk bukan berangka, manakala data kuantitatif pula merujuk kepada maklumat yang diperoleh dalam bentuk nombor seperti jumlah orang dan sebagainya.

Soal selidik merupakan satu set soalan atau item dalam bentuk tulisan. Instrumen tersebut merupakan satu alat yang dibentuk secara khusus untuk mengumpul maklumat bagi tujuan analisis yang dapat menjawab persoalan kajian. Sesuatu borang soal selidik hanya boleh dibentuk berdasarkan objektif khusus kajian untuk mengumpul data kajian. Soal selidikjuga menjadi alat ukur yang lazimnya digunakan dalam sesuatu kajian penyelidikan. Tambahan itu, penggunaan kaedah

soal selidik sangat relevan kerana mampu mendapatkan maklumat berkenaan fakta, kepercayaan, perasaan, kehendak dan sebagainya. Di samping itu, bagi memudahkan pengkaji mendapatkan data daripada responden, pengkaji mengedarkan borang soal selidik melalui google form. Responden akan menjawab soalan soal selidik itu dengan mudah di atas talian. Soal selidik dalam kajian ini membabitkan responden yang dibahagikan kepada kawasan luar bandar dan dalam bandar kawasan kajian. Responden terdiri daripada pelbagai peringkat umur, jantina dan kaum serta mereka yang sudah layak mengundi iaitu responden yang berumur 18 tahun dan ke atas.

Temu bual merupakan perbualan antara dua orang atau lebih yang mana melibatkan penemu bual dengan individu ditemu bual. Penemu bual adalah melibatkan pengkaji manakala individu yang ditemu bual pula adalah informan. Temu bual merupakan teknik pengutipan data yang melibatkan interaksi bersemuka (face to face) atau melalui percakapan telefon antara pengkaji dengan individu yang ditemu bual (informan). Temu bual atau sinonim dengan istilah interview adalah suatu proses interaksi dan komunikasi yang melibatkan dua orang atau lebih (subjek dan objek). Kaedah ini dilakukan untuk mendapatkan maklumat dengan bertanya langsung kepada informan. Temu bual berstruktur juga adalah aktiviti perbualan dan soal jawab iaitu bentuk dan kandungan soalan yang ingin ditanya adalah terhad pada sesuatu tajuk atau bidang yang tertentu sahaja. Bagi kajian ini, kaedah temu bual secara bersemuka akan dibuat mengikut soalan yang diberikan, pengkaji berjumpa dengan informan yang berbeza dan berlainan parti politik untuk mengulas dan memberi pandangan mengenai soalan yang dikemukakan.

Kaedah pemerhatian merupakan satu kaedah yang digunakan untuk

mengukur pembolehubah penyelidikan selain daripada kaedah soal selidik dan kaedah temu bual. Pemerhatian ini dilakukan sendiri oleh pengkaji dengan cara pengkaji turun ke lapangan pada waktu yang telah ditetapkan. Melalui kaedah pemerhatian ini, pengkaji dapat melihat sendiri persekitaran fizikal dan tingkah laku yang ditunjukkan oleh pengundi di kawasan kajian. Kaedah ini penting untuk membantu pengkaji dalam menyiapkan penyelidikan yang dijalankan.

Data sekunder pula merujuk kepada data yang telah diolah atau diperoleh dari sumber lain seperti majalah, akhbar dan lain-lain. Antaranya adalah kajian kepustakaan dan kajian atas talian. Menerusi kajian ini, data sekunder didapati daripada bahan bacaan yang boleh dipercayai seperti pembacaan terhadap buku ilmiah, artikel jurnal, kertas persidangan dan seminar, laporan penyelidikan dan tahunan, laman sesawang, majalah dan akhbar tempatan. Selain itu, maklumat juga diperoleh daripada sumber daripada internet bagi mendapatkan maklumat yang berkaitan dengan kajian. Maklumat yang didapati dalam talian juga banyak dibantu menerusi laman sesawang rasmi kerajaan dan negeri.

Perpustakaan merupakan tempat paling utama untuk memperoleh sesuatu maklumatataupun data. Di perpustakaan terdapat dalam pelbagai bentuk antaranya buku ilmiah, majalah, artikel jurnal, kertas seminar persidangan, risalah, akhbar, laporan penyelidikan, laporan bulanan dan tahunan kerajaan dan sebagainya. Perpustakaan yang sering dikunjung oleh pengkaji untuk mendapatkan sumber maklumat dan data adalah Perpustakaan Tun Seri Lanang (PTSL), Universiti Kebangsaan Malaysia.

Dalam kajian ini juga, pengkaji juga mendapatkan maklumat dan membuat rujukan secara online di internet. Antaranya adalah melalui laman web yang

berkaitan politik pilihan raya, akhbar online, blog, aplikasi Whatsapp, Facebook, Instagram, Twitter, Telegram, Youtube dan sebagainya. Rujukan secara online ini sedikit sebanyak dapat membantu pengkaji memperoleh maklumat berkaitan politik yang diperlukan dalam menyiapkan penyelidikan ini.

Data yang diperoleh dianalisis dengan menggunakan teknik menganalisis data. Hal ini kerana data akan dikemaskini mengikut pengagihan maklumat bagi setiap soalan (variable) dengan menggunakan aplikasi 'Statistical Package for The Social Science Version Personal Computer' atau dipanggil SPSS PC. Aplikasi SPSS ini sememangnya mempunyai banyak kelebihan kerana perisian tersebut dapat menganalisis pelbagai jenis data serta dapat menghasilkan satu rumusan data yang ringkas, tepat dan padat.

## Hasil Kajian dan Perbincangan

Pilihan Raya Umum 15 (PRU-15) telah dilaksanakan pada 19 November 2022 yang lalu. Pakatan Harapan (PH) memperoleh kerusi terbanyak dengan 82 kerusi, sementara Perikatan Nasional (PN) tidak jauh ketinggalan dengan penguasaan kuat di kawasan utara negara, terutamanya dengan dominasi penuh di Perlis, Kelantan dan Terengganu. ketua PH Anwar Ibrahim dilantik dan diangkat sumpah sebagai Perdana Menteri negara ke-10 pada 24 November, dengan sokongan sampingan daripada BN, GPS, GRS,[8] Warisan, PBM dan calon bebas.

### Persetujuan Dengan PRU-15 yang Diadakan pada 19 November 2022

Pembubaran Parlimen telah membuka ruang kepada pelaksanaan pilihan raya umum ke-15 (PRU-15) dalam usaha mengembalikan semula mandat kepada rakyat memilih pemimpin yang diyakini mereka. Berbeza dengan beberapa PRU yang telah

diadakan, PRU-15 mengetengahkan beberapa perkara baharu yang mungkin tidak pernah disaksikan sebelum ini. Pemilihan tarikh untuk diadakan PRU-15 iaitu pada 19 November 2022 telah mendapat kritikan yang cukup hebat. Berdasarkan pernyataan responden, majoriti responden yang setuju dengan tarikh PRU-15 itu adalah sebanyak 76.5 peratus. Kebanyakan daripada mereka tidak menjadikan tersebut sebagai isu yang besar malah menerima sahaja tarikh mengundi yang telah ditetapkan. Tambahan itu, tarikh tersebut juga jatuh pada hari hujung minggu dan membolehkan penjawat awam menunaikan tanggungjawab untuk turun mengundi. Selain itu, mereka juga mengatakan bahawa PRU yang dibuat pada hujung tahun membolehkan negara membuka lembaran baru dengan menerima pelantikan Perdana Menteri dan kerajaan baru. Kebanyakan daripada responden adalah penduduk tetap di kawasan tersebut dan mereka tidak menjadikan perkara tersebut sebagai masalah untuk keluar mengundi kerana sudah berada di kampung halaman dan mudah untuk ke pusat mengundi. Dalam pada itu, bagi mereka yang bergelar pelajar IPT, mereka mengatakan bahawa mereka sangat bersetuju dengan tarikh tersebut kerana diberikan masa yang mencukupi oleh pihak Kementerian Pengajian Tinggi (KPT) untuk pergerakan balik mengundi dan pulang ke kampus selepas mengundi.

Walau bagaimanapun, hasil kajian menunjukkan segelintir responden yang tidak bersetuju dan tidak pasti dengan PRU-15 yang diadakan pada 19 November 2022 adalah masing-masing sebanyak 11.80 peratus. Hal ini dikatakan sedemikian kerana segelintir daripada responden mengatakan bahawa pemilihan tarikh tersebut tidak bersesuaian disebabkan oleh faktor fenomena alam iaitu musim tengkujuh. Bagi negeri Pantai Timur, musim tengkujuh sering berlaku pada setiap akhir tahun. Oleh

disebabkan itu, mereka merasakan bahawa rakyat di kawasan yang terjejas akan mengalami kesukaran untuk turun mengundi.

**Pendapat Umum Mengenai Pernyataan "PRU-15, 2022"**

Menurut Suruhanjaya Pilihan Raya (SPR), PRU15 merekodkan seramai 21,173,638 pemilih berdaftar layak mengundi pada PRU-15 meliputi 20,905,366 pengundi biasa, 146,737 anggota tentera serta pasangan, 118,794 anggota polis serta pasangan Polis Pasukan Gerakan Am (PGA) dan 2,741 orang Pengundi Tidak Hadir Luar Negara. Angka ini termasuk 1.4 juta pengundi berumur 18-20 tahun yang bakal turun mengundi buat kali pertama. Pendaftaran secara automatik pemilih berusia 18 tahun ke atas sudah diwartakan dan berkuat kuasa sejak 15 Disember 2021. Sementara itu, PRU15 turut menyaksikan enam parti gabungan bertanding bagi meraih sokongan pengundi. Antaranya adalah Barisan Nasional (BN), Perikatan Nasional (PN), Gabungan Parti Sarawak (GPS), Gabungan Rakyat Sarawak (GRS), Pakatan Harapan (PH) dan Gerakan Tanah Air (GTA).

**Jadual 1**

*Pendapat umum mengenai pernyataan "PRU-15, 2022" (Peratus)*

| Bil. | PRU-15, 2022 | Setuju | Tidak setuju | Tidak pasti |
|---|---|---|---|---|
| 1. | Pengundi sepatutnya menilai dan mempastikan kebenaran dan kerasionalan terlebih dahulu maklumat atau isu kempen dalam media sosial seperti Tik Tok dan sebagainya sebelum mempercayainya. | 92.2 | 5.9 | 2.0 |
| 2. | Pilihan pengundi yang pelbagai dalam PRU-15 wajar dihormati semua pihak. | 88.2 | 9.8 | 2.0 |
| 3. | Keputusan dan pola pengundian dalam PRU-15 sangat luar biasa dan diluar jangkaan kebanyakan pihak. | 86.3 | 13.7 | 0.0 |
| 4. | Isu kredibiliti dan integriti kepimpinan adalah isu yang paling penting untuk dijadikan faktor kepada pengundi untuk mengundi dalam PRU-15. | 84.3 | 11.8 | 3.9 |

| | | | | |
|---|---|---|---|---|
| 5. | Keputusan PRU-15 harus diterima dengan hati yang terbuka dan tenang. | 84.3 | 9.8 | 5.9 |
| 6. | SPR telah membuat yang terbaik untuk menjayakan proses PRU-15. | 80.4 | 7.8 | 11.8 |
| 7. | Pihak keselamatan berjaya mengekang provokasi ketika kempen PRU-15. | 80.4 | 15.7 | 3.9 |
| 8. | Kesedaran dan tanggungjawab sebagai pengundi lebih penting dilunaskan meskipun hari mengundi diadakan dalam keadaan yang sukar. | 78.4 | 7.8 | 13.7 |
| 9. | Pilihan pengundi dalam PRU-15 masih rasional. | 76.5 | 15.7 | 7.8 |
| 10. | Faktor emosional dan terpengaruh dengan media sosial mempengaruhi pilihan politik pengundi dalam PRU-15. | 76.5 | 19.6 | 3.9 |
| 11. | Pada akhirnya, keputusan PRU-15 dan pembentukan Kerajaan Perpaduan daripada pelbagai parti politik yang berbeza idealogi dan pemikiran pemimpin menunjukkan dalam praktik politik betapa berseni, berstrategi, tiada yang mustahil dan tiada kawan dan lawan yang kekal dalam politik. | 76.5 | 21.6 | 2.0 |
| 12. | Semua pihak terutamanya pihak pembangkang perlu menghentikan 'politiking' yang tidak berkesudahan dan perlu bergerak ke hadapan. | 76.5 | 13.7 | 9.8 |
| 13. | Walau apapun alasan atau rintangan yang perlu dihadapi, pengundi akan tetap turun mengundi bila-bila masa. | 70.6 | 13.7 | 15.7 |
| 14. | Pengundi lebih tertarik dengan kaedah kempen media sosial untuk dijadikan sebagai sandaran untuk mengundi dalam PRU-15. | 70.6 | 21.6 | 7.8 |
| 15. | Ketiadaan gabungan parti politik tunggal memperoleh jumlah kerusi Parlimen dengan majoriti mudah 112 kerusi menunjukkan tiada parti politik dapat membentuk kerajaan secara bersendirian dan perlu juga bergabung dengan parti lawan. | 70.6 | 21.6 | 7.8 |
| 16. | PRU-15 sememangnya sesuai diadakan pada November 2022. | 66.7 | 15.7 | 17.6 |
| 17. | Isu yang dicanangkan dalam kempen PRU-15 masih rasional. | 66.7 | 17.6 | 15.7 |
| 18. | Kebanyakan media sosial seperti Tik Tok dan lain-lain lebih bersifat 'menghasut', 'mengadu domba', 'memfitnah', 'buat cerita tak betul', 'menghina', 'propaganda', dan 'memaparkan elemen negatif' dalam menyampaikan sesuatu isu. | 64.7 | 17.6 | 17.6 |
| 19. | Pola keputusan dan sokongan pengundi dalam PRU-15 menunjukkan jurang politik perkauman semakin teruk kerana tiadanya parti politik | 62.7 | 29.4 | 7.8 |

| | | | | |
|---|---|---|---|---|
| | tunggal yang mendapat sokongan majoriti daripada semua kaum dan wilayah di negara ini. | | | |
| 20. | Isu perkauman dan keagamaan yang bersifat negatif, menakut-nakutkan dan memburukkan pihak lawan sesuai dengan budaya politik di negara ini. | 35.3 | 7.8 | 56.9 |
| 21. | Strategi kempen menyerang dan memperlekeh peribadi pemimpin lawan iaitu 'character assassination' merupakan kaedah yang sesuai untuk meraih sokongan pengundi. | 29.4 | 7.8 | 62.7 |
| 22. | Kempen memburukkan pihak lawan adalah cara yang terbaik untuk mendapatkan sokongan pengundi dalam PRU-15. | 25.5 | 9.8 | 64.7 |

Sumber: Soal selidik 2023

PRU-15 yang telah dijalankan pada November tahun 2022 telah memberi satu kelainan dari kebiasaan. Hal ini kerana pelbagai persoalan yang timbul sepanjang musim PRU-15 dibuat. Dalam konteks pendapat umum mengenai pernyataan "PRU-15, 2022", peratusan tertinggi iaitu sebanyak 92.2 peratus responden yang bersetuju bahawa 'pengundi sepatutnya menilai dan mempastikan kebenaran dan kerasionalan terlebih dahulu maklumat atau isu kempen dalam media sosial seperti Tik Tok dan sebagainya sebelum mempercayainya' (Lihat Jadual 1). Sudah tidak dapat disangkal lagi, penggunaan media sosial akan menjadi medium utama dalam menghebahkan kempen bagi setiap parti politik. Hal ini kerana, melalui media sosial, segala hebahan dapat disampaikan dengan lebih cepat atau bahasa yang sering digunakan adalah "viral". Walau bagaimanapun, segala berita dan isu yang dimuat naik dalam media sosial tidak semuanya adalah fakta malah ada juga yang palsu. Media sosial memberi peluang kepada pihak tertentu untuk menyebarkan propaganda hitam termasuk fitnah dan berita tidak benar untuk menjatuhkan pihak lain kerana penggunaannya yang tiada sempadan. Demi kepentingan setiap calon parti, media sosial menjadi salah satu strategi untuk menjatuhkan pihak lawan dan akan mempengaruhi rakyat. Manipulasi

dalam politik yang dihebahkan dalam media sosial menyebabkan rakyat mudah terpengaruh dan bersikap untuk mengkeji parti berkenaan. Oleh hal demikian, setiap isu yang dilemparkan melalui media sosial perlu dinilai terlebih dahulu sebelum dibahaskan. Hal ini akan mempengaruhi pemikiran rakyat dan tidak mahu rakyat mudah diperkutak-katikkan.

Seterusnya, peratusan kedua yang tertinggi iaitu sebanyak 88.2 peratus responden adalah 'pilihan pengundi yang pelbagai dalam PRU-15 wajar dihormati semua pihak'. Pada PRU-15 yang lalu, satu kejutan buat rakyat apabila diumumkan bahawa Pakatan Harapan (PH) telah memenangi jumlah kerusi parlimen dan secara rasmi membentuk kerajaan baru. Dalam hal ini, masih ramai lagi rakyat yang tidak dapat menerima keputusan itu dan masih mempersoal dengan kemenangan tetsebut. Walau bagaimanapun, keputusan itu perlu diterima oleh semua kerana pilihan pengundi wajar untuk dihormati oleh semua pihak. Setiap pengundi mempunyai sebab tersendiri apabila mengundi calon dalam mana-mana parti. Hal ini kerana, pemikiran setiap pengundi adalah berbeza-beza dan juga terdapat percanggahan pendapat di mana ia melibatkan kepentingan diri sendiri dan juga negara.

**Berpuas Hati dan Menerima Keputusan PRU-15 Diadakan Pada 19 November 2022 Seadanya**

PRU-15 yang diadakan pada 19 November 2022 yang lalu telah menamatkan tanda tanya rakyat mengenai kemelut dalam tampuk pemerintahan dalam negara. Keputusan yang diperoleh sudah semestinya meninggalkan beberapa kesan kepada ahli politik dan juga rakyat. Oleh disebabkan itu, sebanyak 60.8 peratus responden yang berpuas hati dan menerima keputusan PRU-15 diadakan pada 19 November 2022 seadanya. Hal ini kerana mereka percaya bahawa setiap parti politik yang

menang akan pro dan kontra, jadi untuk PRU kali ini wajarlah untuk diberi parti yang menang mandat dalam memegang tampuk pemerintahan. Tambahan itu, ini juga salah satu cara untuk mengelakkan keadaan negara menjadi lebih teruk jika rakyat tidak menerima keputusan PRU-15 dengan hati yang lapang. Setiap kemenangan yang diperoleh oleh mana-mana parti adalah keputusan berdasarkan majorit undian rakyat dan ini menunjukkan bahawa rakyat sebulat suara menerima bahawa parti politik Pakatan Harapan (PN) mampu memerintah negara dengan baik. Oleh itu, rakyat menerima keputusan PRU-15 dengan hati yang terbuka dan menerima Kerajaan Perpaduan sebagai kerajaan baru Malaysia.

Namun begitu, sebanyak 23.5 peratus responden yang tidak pasti mengenai rasa puas hati dalam menerima keputusan PRU-15 yang lalu. Hal ini berikutan ada di kalangan mereka yang meragui dengan keputusan yang diumumkan. Tambahan itu, mereka juga menganggap bahawa proses kiraan undi adalah tidak jelas dan berkemungkinan ada yang menjadi talam dua muka.

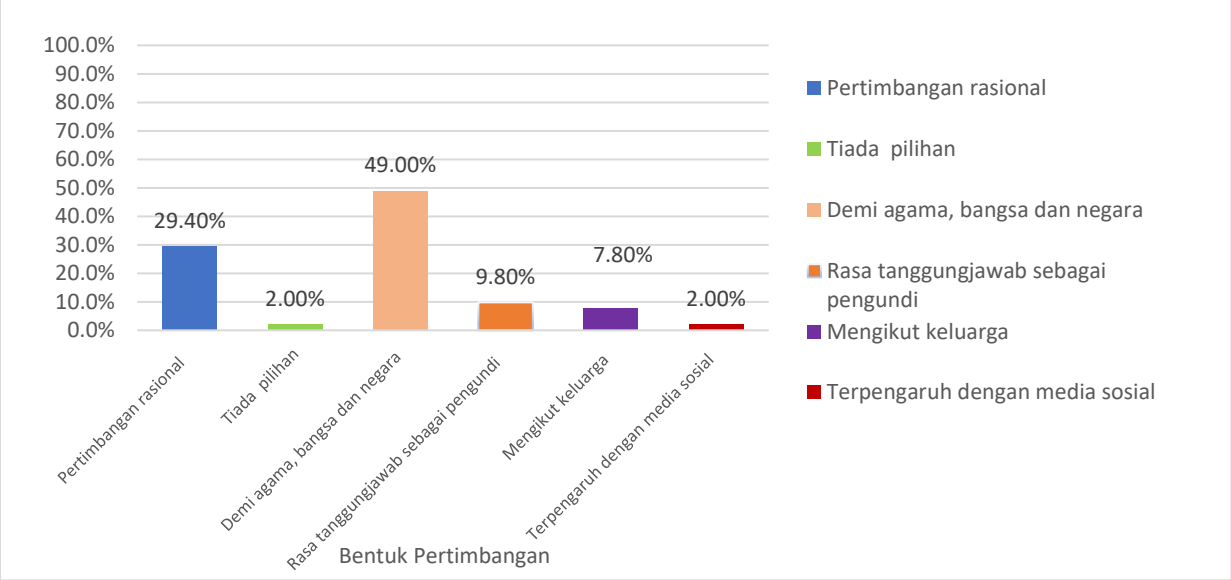
Walau bagaimanapun, ada juga responden yang merasakan tidak puas hati keputusan PRU-15 yang lepas. Lebih kurang 15.7 peratus responden yang mengatakan rasa tidak puas hati dengan keputusan PRU-15 itu. Hal ini jelas dilihat apabila rata-rata daripada mereka memang tidak menyukai dengan Kerajaan Perpaduan ini. Mereka merasakan bahawa kerajaan baharu ini tidak dapat membawa Malaysia menjadi sebuah negara yang lebih baik kerana terpalit sejarah hitam oleh pemimpin parti berkenaan. Tambahan itu, bagi penyokong tegar sesebuah parti, mereka berasa amat kecewa kerana parti yang diharapkan mereka tidak dapat memenangi majoriti undi semasa pilihan raya itu. Oleh itu, rasa tidak puas itu masih lagi tidak dapat dikawal sehinggakan menimbulkan isu yang tidak diingini.

**Bentuk Pertimbangan Utama Pengundi Ketika Mengundi Dalam PRU-15**

Pilihan untuk mengundi sudah semestinya terletak pada kuasa undi rakyat namun untuk membuat pilihan undi,rakyat tidak akan memilih secara melulu. Walaupun mengundi itu adalah tanggungjawab sebagai warganegara, namun perlu juga diketahui bahawa setiap undi itu akan memacu negara ke arah yang lebih baik jika negara di bawah tampuk pemerintahan yang bijaksana. Oleh disebabkan itu, segala bentuk pertimbangan akan dibuat oleh rakyat semasa mengundi dalam PRU-15.

**Rajah 1**

*Bentuk Pertimbangan Utama Pengundi Ketika Mengundi Dalam PRU-15 (peratus)*




Sumber: Soal selidik 2023

Berdasarkan Rajah 1, peratusan yang paling tinggi bagi pertimbangan pengundi ketika mengundi PRU-15 adalah pertimbangan demi agama,bangsa dan negara iaitu sebanyak 49.0 peratus. Hal ini kerana, rakyat mahukan satu kerajaan yang seimbang dari semua aspek dan boleh memacu negara ke arah yang lebih baik. Dari segi agama,sudah semestinya rakyat ingin mengekalkan agama Islam sebagai

agama rasmi negara dan tidak mahu ia ditindas oleh pihak tidak bertanggungjawab. Jika jatuh di tangan pemimpin yang salah,sudah semestinya agama juga akan turut tergugat lebih-lebih lagi agama Islam. Dalam pada itu, rakyat juga akan memikirkan tentang perpaduan yang akan menjalinkan hubungan rakyat yang tidak mengira bangsa. Hal ini juga juga sekaligus akan membawa kebaikan serta kesejahteraan kepada negara. Jika pertimbangan ini tidak dibuat sudah pasti rakyat tidak dapat disatukan dan akan berpecah belah akibat permainan politik.

Seterusnya, peratusan kedua tetinggi iaitu sebanyak 29.40 peratus adalah pertimbangan rasional. Sikap rasional sangatlah penting dan perlu diberi fokus yang lebih. Hal ini kerana ramai yang terlepas pandang bahawa pertimbangan rasional menjadi akar umbi dalam membuat sesuatu keputusan yang melibatkan masa depan sesebuah negara. Jika hilang pertimbangan rasional sudah pasti keputusan yang dibuat tidak akan menjadi keputusan yang wajar untuk diterima oleh rakyat dan juga negara.

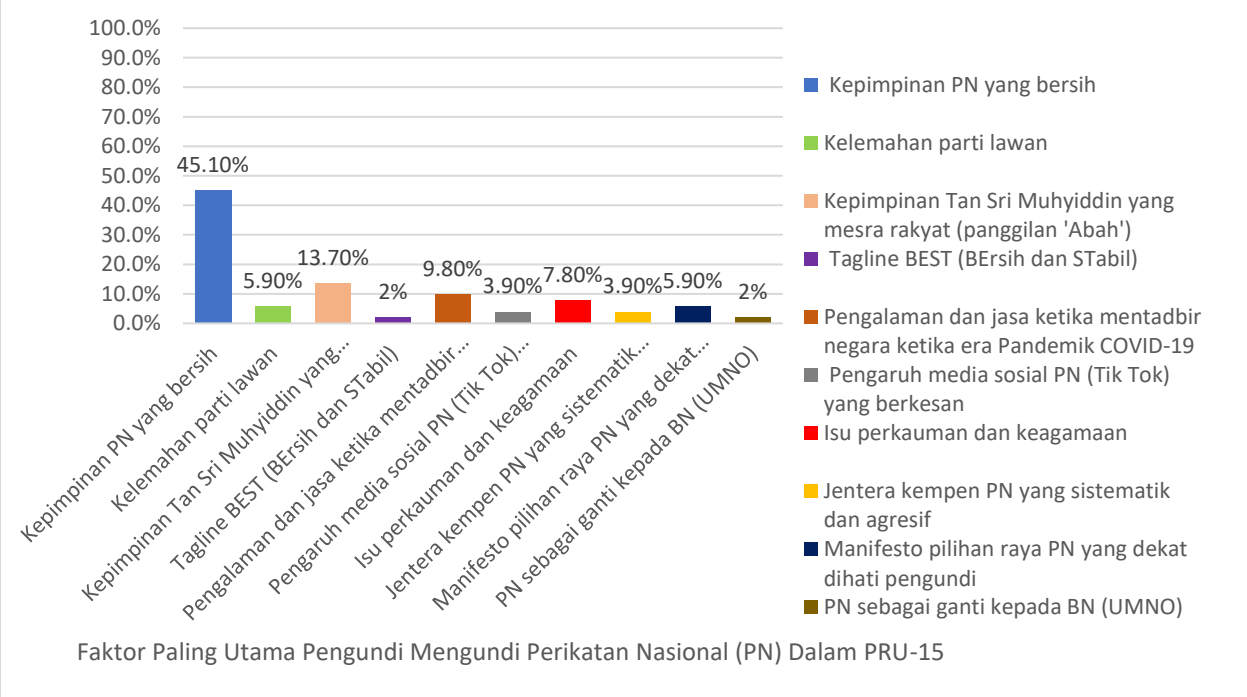
Dalam pada itu, peratusan yang berikutnya adalah pertimbangan dari segi rasa tanggungjawab sebagai pengundi iaitu sebanyak 9.80 peratus. Rasa tanggungjawab ini tidak semua individu akan mengambil berat kerana hanya mereka yang benar-benar memfokuskan proses pembangunan negara sahaja akan lahir rasa tersebut. Ketika bermula musim mengundi, setiap warganegara yang mencukupi syarat-syarat sebagai pengundi akan didaftarkan sebagai pengundi. Oleh disebabkan itu,hadir rasa tanggungjawab menyebabkan pengundi menunaikan tanggungjawah untuk mengundi semasa PRU-15.

**Faktor Paling Utama Pengundi Mengundi Perikatan Nasional (PN) Dalam PRU-15**

Pada PRU-15 yang lalu, dapat disaksikan bahawa parti Perikatan Nasional (PN) telah meniadi parti yang popular dalam kalangan belia. Hal ini kerana PN telah membawa satu imej yang tersendiri sehingga mampu meraih kepercayaan rakyat untuk mengundi parti tersebut. Oleh hal demikian, terdapat beberapa faktor yang menyebabkan pengundi mengundi Perikatan Nasional (PN) dalam PRU-15 yang lalu.

**Rajah 2**

*Faktor paling utama pengundi mengundi Perikatan Nasional (PN) dalam PRU-15 (peratus)*




Sumber: Soal selidik 2023

Parti Perikatan Nasional sudah mula tidak asing dalam kalangan rakyat semenjak musim PRU-15. Oleh disebabkan itu, berdasarkan Rajah 2, faktor paling utama pengundi mengundi Perikatan Nasional (PN) dalam PRU-15 adalah disebabkan

oleh 'Kepimpinan PN yang bersih' di mana sebanyak 45.10 peratus responden yang mempersetujuinya. Tidak dapat dinafikan lagi bahawa PN merupakan parti yang bersih daripada isu-isu politik atau isu-isu jenayah yang melanggar undang-undang negara. Rakyat sudah tidak mahu memilih parti yang banyak konflik dalam dunia politik. Sebagai contoh masalah rasuah dan penyelewengan wang. Oleh disebabkan itulah, rakyat mula mengambil langkah baru dengan menyokong parti yang tidak terpalit dengan isu-isu tersebut.

Peratusan kedua tertinggi mengenai faktor pengundi memilih PN dalam PRU-15 adalah disebabkan oleh 'Kepimpinan Tan Sri Muhyiddin yang mesra rakyat (panggilan 'Abah')' iaitu dengan jumlah sebanyak 13.70 peratus. Nama Tan Sri Muhyiddin mula melonjak naik semenjak fenomena Covid-19 yang bermula pada tahun 2020. Beliau mula dikenali rakyat apabila beliau banyak membuat inisiatif bagi mengekang wabak Covid-19 daripada terus merebak. Sikap beliau yang mesra rakyat juga membolehkan rakyat berani untuk bersuara sehingga beliau mendapat gelaran 'Abah'. Rakyat merasakan bahawa beliau mampu memegang pemerintahan negara jika parti beliau memenangi PRU-15.

Seterusnya adalah faktor 'Pengalaman dan jasa ketika mentadbir negara ketika era pandemik Covid-19' iaitu sebanyak 9.80 peratus responden yang memilih faktor tersebut. Semasa era pandemik Covid-19, PN merupakan parti yang menjadi saksi bagaimana perjalanan pahit getir dalam mengharungi pandemik tersebut. Pelbagai inisiatif yang telah dilakukan bagi memberi kesejahteraan yang baik kepada rakyat. Rakyat merasakan ia adalah jasa yang sukar untuk dibalas kerana sedikit sebanyak telah membantu rakyat untuk meneruskan kehidupan dengan baik sepanjang era

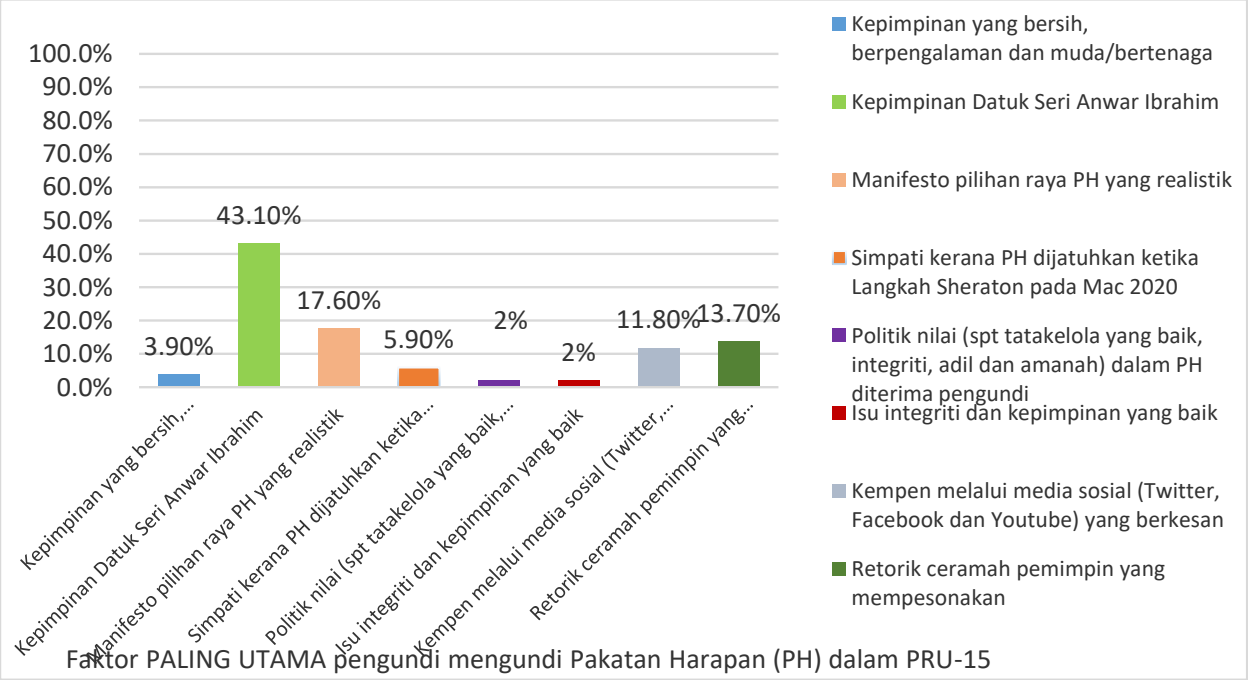
pandemik itu. Oleh disebabkan itulah, faktor tersebut telah mempengaruhi rakyat untuk memilih Pakatan Harapan dalam PRU-15.

**Faktor Paling Utama Pengundi Mengundi Pakatan Harapan (PH) Dalam PRU-15**

Kemenangan Pakatan Harapan (PH) telah menjadi satu fenomena atau sejarah baru buat tanah air. Hal ini kerana, kebangkitan PH telah menumpaskan dua sosok parti utama iaitu BN dan PAS sehingga mencipta sejarah tersendiri. Oleh disebabkan itu, terdapat beberapa faktor yang menyebabkan pengundi mengundi Pakatan Harapan (PH) dalam PRU-15 yang lalu.

**Rajah 3**

*Faktor paling utama pengundi mengundi Pakatan Harapan (PH) dalam PRU-15 (peratus)*




Sumber: Soal selidik 2023

Berdasarkan Rajah 3, faktor paling utama yang dipilih oleh pengundi dalam mengundi Pakatan Harapan (PH) adalah faktor kepimpinan Datuk Seri Anwar Ibrahim iaitu sebanyak 43.10 peratus. Walaupun DSAI mempunyai sejarah hitam yang menggemparkan tanah air namun beliau merupakan seorang ahli politik yang mempunyai banyak pengalaman dalam memegang jawatan kabinet Menteri. Berbekalkan latar belakang dan pengalaman yang beliau ada, rakyat percaya bahawa faktor tersebut menyebabkan rakyat meletakkan kepercayaan kepada Pakatan Harapan (PH). Seterusnya adalah faktor manifesto pilihan raya PH yang realistik merupakan faktor kedua tertinggi iaitu sebanyak 17.60 peratus. Rakyat juga akan memandang serius kepada manifesto dalam sesebuah parti politik yang dipertandingkan. Hal ini kerana ia boleh menjadi satu lambing kepada keteguhan parti tersebut dalam membantu rakyat. Oleh disebabkan itu, manifesto realisitik yang dikemukan oleh PH telah meraih sokongan rakyat serta menaikkan semula parti tersebut. Sebagai contoh, tumpuan utama manifesto PH adalah tentang aspek kebajikan rakyat dan perkara yang perlu diperbetulkan di dalam institusi seperti Parlimen. Selain itu, perkara lain yang diberi tumpuan adalah bagaimana untuk meningkatkan pendapatan rakyat seperti gaji dan pekerjaan mereka.

Seterusnya peratusan yang ketiga tertinggi adalah faktor retorik ceramah pemimpin yang mempersonakan di mana peratusan tersebut adalah sebanyak 13.70 peratus. Faktor ini berkait rapat dengan kandungan ucapan yang disampaikan oleh Datuk Seri Anwar Ibrahim. Hal ini kerana, ceramah yang disampaikan mempunyai keunikan yang tersendiri sehingga membuatkan rakyat tepesona dengan hujah yang disampaikan. Gaya penyampaian yang menarik juga turut menjadikan ceramah tersebut mudah untuk diterima oleh rakyat.

**Faktor Paling Utama Pengundi Mengundi Barisan Nasional (BN) Dalam PRU-15**

Barisan Nasional (BN) sudah tidak asing lagi dalam kalangan rakyat tidak kira golongan muda mahupun golongan tua. Hal ini kerana penubuhan BN telah dibentuk sejak 1973 dan ia merupakan penubuhan parti yang sudah begitu lama. Suatu ketika dahulu, BN cukup digeruni dalam arena Pilihan Raya Umum (PRU) kerana kehebatan mereka dalam merangkul hampir kesemua kerusi yang dipertandingkan. Kekuatan serta dominasi politik tanah air yang ditunjukkan BN seakan-akan mampu meranapkan masa depan pihak lawan mereka.

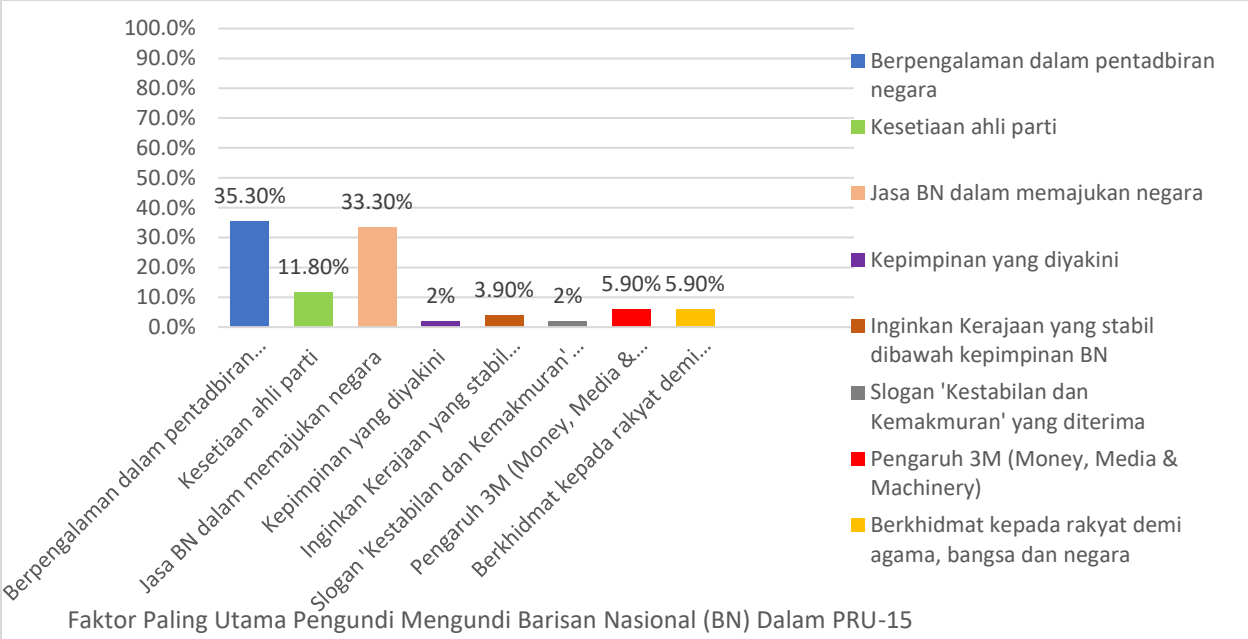
Berdasarkan Rajah 4, peratusan bagi faktor paling utama pengundi mengundi Barisan Nasional (BN) dalam PRU-15 ialah faktor berpengalaman dalam pentadbiran iaitu sebanyak 35.30 peratus. Hal ini dikatakan demikian kerana sukar dinafikan bahawa parti Barisan Nasional (BN) mempunyai pengalaman yang sangat luas dalam pengurusan pentadbiran memandangkan parti ini telah menguasai kerajaan Pusat dalam masa yang agak lama. Bukan itu sahaja, pemimpin-pemimpin bagi parti Barisan Nasional (BN) juga merupakan individu yang memiliki banyak pengalaman berkaitan pengurusan pentadbiran negara. Oleh itu, jelaslah bahawa faktor pengalaman dalam pentadbiran telah menjadi faktor paling utama pengundi mengundi Barisan Nasional (BN).

Peratusan faktor paling utama pengundi mengundi Barisan Nasional (BN) dalam PRU-15 adalah disebabkan oleh jasa BN dalam memajukan negara iaitu sebanyak 33.30 peratus. Hal ini disebabkan oleh, parti Barisan Nasional ini telah memenangi Pilihan Raya Umum untuk beberapa kali yang menyebabkan negara ini telah merasai pelbagai jasa dan sumbangan daripada parti ini. Barisan Nasional (BN) telah

menyumbangkan pelbagai jasa dalam memajukan negara seperti semasa pemerintahan Dato' Seri Najib Bin Tun Abdul Razak. Sepanjang pemerintahan beliau, beliau telah melaksanakan Klinik 1 Malaysia, Kedai 1 Malaysia, pemberian bantuan kepada pelajar Institusi Pengajian Tinggi serta jasa beliau yang sukar dilupai oleh pengundi iaitu bantuan BRIM. Jasa-jasa ini telah dikenang oleh seluruh rakyat dan menyebabkan terdapat ramai pengundi yang yakin dan kagum dengan jasa-jasa yang telah disumbangkan sebelum ini. Oleh itu, faktor jasa BN dalam memajukan negara telah menjadi faktor paling utama pengundi mengundi Barisan Nasional (BN).

**Rajah 4**

*Faktor paling utama pengundi mengundi Barisan Nasional (BN) dalam PRU-15 (peratus)*




Sumber: Soal selidik 2023

Seterusnya faktor paling utama pengundi mengundi Barisan Nasional (BN) ialah faktor kesetiaan ahli parti iaitu sebanyak 11.80 peratus responden yang bersetuju dengan faktor yang dinyatakan ini. Hal ini dikatakan demikian kerana kesetiaan ahli

parti Barisan Nasional (BN) terhadap parti tersebut amat dikagumi oleh rakyat jelata. Perkara ini jelas boleh dilihat iaitu semasa mereka telah kalah dekat beberapa kerusi pada beberapa pilihan raya yang lalu. Pemimpin-pemimpin ini kekal berada pada parti tersebut dan mereka tidak bertindak untuk melompat parti demi kepentingan diri semata-mata. Mereka juga rela untuk menjadi parti pembangkang sekiranya kalah dan tidak akan membiarkan maruah parti dipijak oleh orang lain. Oleh itu, kesetiaan yang ditunjukkan oleh ahli parti ini jelas menunjukkan bahawa faktor ini telah dipersetujui oleh beberapa responden dan merupakan faktor paling utama pengundi mengundi Barisan Nasional (BN).

## Kesimpulan

Sebagai kesimpulannya, keputusan PRU 2022 yang menghasilkan sokongan padu pengundi Melayu terhadap PN adalah satu keputusan di luar jangkaan ramai pihak. Pengundi Melayu menyembunyikan arah sokongan mereka sepanjang kempen PRU 2022 sehinggalah tiba di peti undi pada 19 November 2022. Sokongan di peti undi tersebut mencetuskan gelombang yang membadai di hampir kesemua kawasan majoriti etnik Melayu 70 peratus ke atas termasuk kubu kuat BN/UMNO di Perak, Pahang, Kelantan, Kedah dan Perlis. Persoalannya, adakah gelombang sokongan etnik Melayu terhadap PN ini akan berterusan menuju dalam beberapa PRU akan datang seperti sokongan pengundi etnik Cina terhadap PH sejak PRU 2008 secara konsisten hinggalah PRU 2022? Inilah politik. Politik itu dinamik, berseni, tiada yang mustahil dan sukar ditelah. Justeru, semua pihak terutamanya kepimpinan parti politik perlu menampilkan imej yang baik dan bersih, mengutamakan kebajikan rakyat, tidak

memandang mudah gelombang sokongan pengundi dan tidak menyusahkan pengundi.

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# FAKTOR MEMPENGARUHI AMALAN PERTANIAN MAMPAN DALAM KALANGAN PEKEBUN KECIL SAWIT ORANG ASLI

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## EXTENDED ABSTRACT

## ABSTRAK

Amalan pertanian mampan merujuk kepada amalan pertanian yang dilakukan bagi memenuhi keperluan masyarakat sekarang tanpa menjejaskan keperluan generasi akan datang yang seiring dengan kesejahteraan ekonomi, sosial dan alam sekitar. Bagi sektor pekebun kecil persendirian sawit, maklumat mengenai amalan pertanian mampan terutama dalam kalangan pekebun kecil Orang Asli amat terhad. Satu kajian untuk melihat faktor-faktor yang mempengaruhi amalan pertanian mampan dalam kalangan Orang Asli telah dilaksanakan yang melibatkan 303 Orang Asli di Daerah

Rompin dan Pekan, Pahang dan mereka dipilih secara rawak. Data dianalisis menggunakan statistik deskriptif, termasuk frekuensi, peratusan, min dan sisihan piawai. Selain itu, perkaitan antara pelbagai faktor seperti umur, tahap pendidikan, pengalaman bertani, saiz ladang dan persepsi pekebun juga dianalisis menggunakan kaedah *Pearson Product Moment Correlation* (PPMC). Status pendidikan didapati mempunyai hubungan secara positif terhadap pengetahuan amalan pertanian mampan di mana status pendidikan yang tinggi akan memberi impak yang kuat kepada pengamalan pengetahuan amalan pertanian mampan dalam kalangan pekebun kecil sawit Orang Asli. Kajian ini menekankan peranan penting pendidikan dan pengetahuan lokal dalam persepsi dan pemahaman pekebun kecil dalam meningkatkan amalan pertanian yang mampan. Ia juga menggariskan keperluan perkhidmatan pengembangan dan semua pihak berkepentingan untuk merapatkan jurang antara pengetahuan lokal dan saintifik secara bersepadu.

Kata kunci: Orang Asli, pekebun kecil, pendidikan, pengetahuan lokal, pertanian mampan.

## Pengenalan

Matlamat Pembangunan Mampan (SDG) telah diperakukan dan berkuat kuasa secara rasmi pada Sidang Kemuncak Pertubuhan Bangsa-bangsa Bersatu pada bulan September 2015 di New York, Amerika Syarikat (FAO, 2018). Matlamat Pembangunan Mampan ialah merangka tindakan untuk mencapai masa depan yang lebih baik dan mampan untuk semua menjelang 2030, termasuk dalam menangani tentangan global yang kita hadapi yang berkaitan untuk mengakhiri semua bentuk kemiskinan, memerangi ketidaksamaan dan mengatasi perubahan iklim sambil memastikan tidak

ada yang ketinggalan (Boar et al., 2020; FAO, 2018; Sarmin et al., 2020; Valentini et al., 2019).

Bagi sektor perladangan di Malaysia, terutama sektor sawit, amalan pertanian mampan amat diberi penekanan bagi memastikan kesejahteraan sektor tersebut. Sebagai pengeluar dan pengeksport minyak sawit kedua terbesar di dunia selepas Indonesia, sektor perladangan sawit telah memainkan peranan penting dalam kegiatan ekonomi negara. Kawasan tanaman sawit yang hanya 55,000 ha pada tahun 1960 telah berkembang menjadi 5.65 juta hektar pada tahun 2023 (MPOB 2024). Antara penyumbang kepada perkembangan sektor perladangan sawit adalah sektor pekebun kecil persendirian yang mewakili 14.5% (0.82 juta hektar) daripada jumlah keluasan tanaman sawit pada tahun 2023. Pekebun kecil didefinisikan sebagai individu yang memiliki tanah kurang dari 40.5 hektar seperti yang ditakrifkan oleh Peraturan Perlesenan Lembaga Minyak Sawit Malaysia (MPOB) 2005, iaitu sebagai pegangan kelapa sawit kurang dari 40.46 ha secara agregat. Purata keluasan tanah sawit bagi seorang pekebun kecil sawit persendirian pada tahun 2023 ialah 3.80 hektar (MPOB, 2024). Pekebun kecil sawit persendirian ialah entiti pengeluaran berskala kecil dan dianggap sebagai titik kelemahan untuk kemampanan sektor sawit (Jelsma et al., 2019; Tan et al., 2020). Sehubungan itu, secara umumnya pekebun kecil persendirian dianggap tidak cekap dan tidak produktif berbanding dengan sistem pengeluaran berskala besar seperti estet (Tan et al., 2019). Pekebun kecil persendirian juga menghadapi beberapa cabaran, seperti kesuburan dan produktiviti tanah yang rendah, kekurangan teknologi yang sesuai, pengurusan baja yang tidak tepat, modal terhad, dan faktor persekitaran lain seperti pemuliharaan air dan tanah (Tan et al., 2019). Walau bagaimanapun Pusat TUNAS (Tunjuk ajar dan nasihat sawit), melalui

penyebaran program teknologi sawit yang berkesan, bertanggungjawab untuk meningkatkan hasil pekebun kecil persendirian dalam amalan pertanian mampan (Abd Hair Awang et al., 2016; Abdul H. Awang et al., 2016; Tan et al., 2019).

Pelaksanaan amalan yang membawa kepada pertanian mampan adalah salah satu cabaran penting yang dihadapi dalam pasaran minyak sawit (Hasan et al., 2015). Pengurusan sumber pertanian yang berkesan untuk memenuhi keperluan manusia (sosial), memelihara alam sekitar dan meningkatkan sumber semula jadi dan ekonomi dapat digambarkan sebagai pertanian mampan (Hasan et al., 2015). Kemampanan kebun sawit pekebun kecil dapat mempengaruhi kemampanan keseluruhan sektor ini secara signifikan (Adiprasetyo et al., 2019). Penerapan sistem pengeluaran minyak sawit mampan oleh pekebun kecil dapat meningkatkan kemampanan sektor industri sawit (Adiprasetyo et al., 2019). Oleh itu, pengenalan amalan pertanian mampan kepada kebun kecil mungkin akan dapat mengurangkan kerugian biodiversiti dan meningkatkan kemampanan pertanian (Parveez et al., 2020). Abazue et al. (2019) melaporkan bahawa pekebun kecil memiliki tahap pengetahuan rendah mengenai pensijilan antarabangsa iaitu Meja Bulat mengenai Minyak Sawit Mampan (RSPO), atau skim pensijilan kebangsaan, Minyak Sawit Mampan Malaysia (MSPO). Walau bagaimanapun, sejak kebelakangan ini, pekebun kecil termasuk dari kelompok Orang Asli mula menunjukkan minat untuk turut serta dalam pensijilan mampan.

Orang Asli merupakan penduduk terawal yang mendiami Semenanjung dan di bahagian pedalaman (Huzaimah Ismail & Che Zarina Sa'ari, 2005; Shah et al., 2018). (Huzaimah Ismail & Che Zarina Sa'ari, 2005) Bilangan Orang Asli kian bertambah saban tahun sehingga mencecah 209,575 orang pada tahun 2022 (Jadual 1). Menurut Abdul Razaq dan Zalizan (2009), masyarakat Orang Asli terbahagi kepada tiga rumpun

utama iaitu Senoi, Melayu Proto dan Negrito. Setiap rumpun tersebut terdiri daripada 18 suku kaum. Sehingga kini, mereka meneruskan kelangsungan hidup melalui kegiatan berburu, memancing, pertanian pindah, arborikultur, dan perdagangan hasil hutan (The Department of Orang Asli Affairs, 2008). Mereka menggunakan pendekatan-pendekatan tradisional dalam apa juga aktiviti, seperti penangkapan ikan dan mencari sumber hutan termasuk pengurusan kebun sawit. Mereka juga dikatakan kurang memiliki pengetahuan dalam amalan pertanian mampan dan ia dibimbangi boleh memberi kesan terhadap pengeluaran minyak sawit mampan. Beberapa kajian mendapati kekurangan pengetahuan mengenai Amalan Pertanian Mampan (APM) dalam kalangan pekebun kecil adalah faktor utama yang memberikan kesan terhadap pengeluaran minyak sawit mampan (Parveez et al., 2020; Jelsma et al., 2019; Tabucanon, 2016). Untuk itu, satu kajian untuk menganalisis hubungan antara tahap pengetahuan dan faktor-faktor pengamalan pertanian mampan dalam kalangan pekebun kecil sawit Orang Asli di Daerah Rompin dan Pekan, Pahang telah dilakukan. Berdasarkan statistik yang dikeluarkan oleh JAKOA, bilangan Orang Asli di Daerah Rompin dan Pekan pada November 2018 adalah masing-masing 12,064 dan 12,053 orang (Jadual 2).

**Jadual 1**

*Penduduk Orang Asli di Semenanjung Malaysia pada November 2018*

| **Negeri** | **Populasi** |
|---|---|
| Johor | 15,825 |
| Kedah | 336 |
| Kelantan | 17,487 |
| Melaka | 1,833 |
| Negeri Sembilan | 12,221 |

| | |
|---|---|
| Pahang | 78,615 |
| Perak | 61,225 |
| Selangor | 20,961 |
| Terengganu | 1,072 |
| **Jumlah** | **209,575** |

Sumber: JAKOA (2022)

**Jadual 2**

*Penduduk Orang Asli Mengikut Daerah di Negeri Pahang pada November 2018*

| **Daerah** | **Populasi** |
|---|---|
| Bentong | 3,218 |
| Bera | 4,509 |
| Cameron Highlands | 6,081 |
| Jerantut | 2,533 |
| Kuantan | 2,272 |
| Lipis | 10,179 |
| Maran | 1,586 |
| Pekan | 12,053 |
| Raub | 3,492 |
| Rompin | 12,064 |
| Temerloh | 6,456 |
| **Jumlah** | **64,443** |

Sumber: JAKOA (2022)

## Kaedah Kajian

Kawasan kajian ini memberi tumpuan kepada pekebun kecil persendirian Orang Asli di Daerah Rompin dan Pekan, Pahang, Malaysia (Rajah 1). Bilangan pekebun kecil

sawit persendirian Orang Asli yang berdaftar dengan MPOB di kedua daerah tersebut pada tahun 2021 adalah 1,428 orang (Jadual 3). Seramai 310 responden dipilih sebagai sampel kajian berdasarkan formula penentuan saiz sampel yang dicadangkan oleh Krejcie dan Morgan (1970). Responden dipilih mengikut pendekatan pensampelan kebarangkalian secara rawak berstrata mengikut daerah digunakan untuk membolehkan setiap orang mempunyai peluang yang sama untuk dipilih. Namun demikian, semasa proses memasukkan data dan semakkan ke dalam SPSS versi 26.0, responden yang menjawab soal selidik dengan lengkap adalah sebanyak 303 orang daripada soal selidik yang diedarkan; maka, jawapan yang sah ialah 303 orang responden.

**Rajah 1**

*Kawasan kajian*


Sumber: Google Map, 2022

**Jadual 3**

*Ringkasan Populasi dan Sampel Responden Data Sebenar*

| Daerah | Bilangan Pelesen MPOB Orang Asli | Saiz Sampel | Jumlah soal selidik yang dikumpulkan | Dapatan data sebenar |
|---|---|---|---|---|
| Rompin | 873 | 184 | 188 | 181 |
| Pekan | 555 | 118 | 122 | 122 |
| **Jumlah** | **1,428** | **302** | **310** | **303** |

Sumber: MPOB (2022)

## Dapatan Kajian dan Perbincangan

### Demografi Pekebun Kecil

Responden kajian adalah terdiri daripada 303 orang pekebun kecil sawit Orang Asli. Profil responden yang berdasarkan latar belakang peribadi adalah terdiri daripada maklumat daerah, jantina, umur, suku kaum, status perkahwinan, isi rumah responden dan tahap pendidikan seperti dalam Jadual 4. Menurut laporan banci yang dijalankan oleh pihak RISDA pada tahun 2013, didapati kumpulan umur melebihi 65 tahun merupakan golongan yang paling ramai di negeri Pahang (RISDA, 2013). Kajian Tan *et al.,* (2019) juga menunjukkan hasil dapatan yang serupa bahawa pekebun kecil yang ramai dalam kumpulan umur 45-69 tahun. Dapatan ini dapat membantu pembangunan polisi dalam menangani kekurangan penyertaan belia dalam pengurusan penanaman sawit di mana mereka merupakan kesinambungan dan kemampanan industri sawit negara.

**Jadual 4**

*Demografi pekebun kecil sawit persendirian Orang Asli*

| Profil responden | Frekuensi | Peratusan | Min |
|---|---|---|---|
| Daerah | | | |
| Rompin | 181 | 59.7 | |
| Pekan | 122 | 40.3 | |

| | | | |
|---|---|---|---|
| Jantina | | | |
| Lelaki | 228 | 75.2 | |
| Perempuan | 75 | 24.8 | |
| | | | |
| Umur | | | |
| 21-30 | 31 | 10.2 | |
| 31-40 | 109 | 36.0 | |
| 41-50 | 103 | 34.0 | |
| 51-60 | 42 | 13.9 | |
| Lebih 60 | 18 | 5.9 | 45.9 |
| | | | |
| Suku Kaum | | | |
| Jakun | 294 | 97.0 | |
| Semelai | 6 | 2.0 | |
| Seletar | 1 | 0.3 | |
| Temiar | 2 | 0.7 | |
| | | | |
| Status Perkahwinan | | | |
| Tidak Pernah Berkahwin | 105 | 34.7 | |
| Berkahwin | 187 | 61.7 | |
| Balu/Duda | 11 | 3.6 | |
| | | | |
| Jumlah Isi Rumah | | | |
| 1 - 2 | 17 | 5.6 | |
| 3 - 4 | 107 | 35.3 | |
| 5 - 6 | 142 | 46.9 | |
| 7 - 8 | 32 | 10.6 | |
| Lebih 9 | 5 | 1.6 | 5 |
| | | | |
| Tahap Pendidikan | | | |
| Tidak pernah bersekolah | 69 | 22.8 | |
| Sekolah rendah | 147 | 48.5 | |
| Sekolah Menengah | 10 | 3.3 | |
| Politeknik/Kolej/Universiti | 77 | 25.4 | |

**Korelasi sosioekonomi terhadap amalan pertanian mampan**

Jadual 5 menunjukkan status pendidikan mempunyai hubungan secara positif dan signifikan terhadap amalan pertanian mampan. Ini menunjukkan bahawa status pendidikan yang tinggi akan memberi impak yang kuat kepada pengamalan pertanian

mampan dalam kalangan pekebun kecil sawit Orang Asli seterusnya menuju ke arah minyak sawit mampan.

**Jadual 5**

*Korelasi terhadap amalan pertanian mampan*

| **Korelasi terhadap amalan pertanian mampan** | | **Pekali (p)** |
|---|---|---|
| Umur Pekebun kecil | Pearson corelation | -0.002 |
| | Sig. (2-tailed) | 0.976 |
| Bilangan isi rumah | Pearson corelation | 0.047 |
| | Sig. (2-tailed) | 0.046 |
| Status pendidikan | Pearson corelation | 0.186*** |
| | Sig. (2-tailed) | 0.001 |
| Saiz kebun | Pearson corelation | 0.086 |
| | Sig. (2-tailed) | 0.133 |
| Pengalaman Penanaman | Pearson corelation | 0.013 |
| | Sig. (2-tailed) | 0.817 |

Nota:*** menunjukkan signifikan pada tahap 1%.

**Pengetahuan Lokal**

Jadual 6 menunjukkan nilai min dan sisihan piawai bagi 17 item yang dikaji. Semua item (kecuali item 14) berada pada tahap yang tinggi, di mana nilai min adalah antara 3.66 hingga 5.0. Manakala satu item (item 14) pula berada pada tahap pengetahuan lokal yang sederhana, iaitu nilai min berada di antara 2.33 hingga 3.65.

**Jadual 6**

*Pengetahuan lokal terhadap amalan pertanian mampan*

| **Item** | **Pernyataan** | **Min** | **SP** |
|---|---|---|---|
| 1 | Tanah dibiarkan/direhatkan | 3.85 | 0.802 |
| 2 | Menanam tanaman penutup bumi | 4.03 | 0.660 |
| 3 | Mengguna Sungkupan (tandan kosong/sisa pertanian) | 4.09 | 0.597 |
| 4 | Tanaman integrasi/campuran/giliran | 4.05 | 0.659 |
| 5 | Mengguna baja organik/kompos/ tinja haiwan/abu tandan | 4.16 | 0.610 |

| | | | |
|---|---|---|---|
| 6 | Mengguna takungan/*drum/culvert* untuk penyimpanan air | 4.19 | 0.655 |
| 7 | Mengguna Sungkupan | 4.10 | 0.615 |
| 8 | Integrasi tanaman/campuran | 4.05 | 0.715 |
| 9 | Menanam tanaman penutup bumi | 4.10 | 0.724 |
| 10 | Integrasi ternakan (lembu/kambing) | 4.03 | 0.763 |
| 11 | Membakar dan mengasap | 3.74 | 0.924 |
| 12 | Tanaman ditabur dengan abu | 3.83 | 0.895 |
| 13 | Mengelilingkan dengan zink/tin | 3.94 | 0.746 |
| 14 | Mengadakan upacara jampi | 3.30 | 1.198 |
| 15 | Membela anjing untuk menghalau hidupan liar | 4.02 | 0.830 |
| 16 | Memanipulasi musim menanam/pilih waktu sesuai menanam | 3.94 | 0.908 |
| 17 | Alat menakutkan serangga/perosak (bunyi/ orang-orang) | 4.01 | 0.806 |

Klasifikasi Min = 1.00-2.32 rendah, Min 2.33-3.65 sederhana, Min 3.66 – 5.00 tinggi

## Kesimpulan

Pengetahuan lokal terbukti menjadi faktor penting dalam menggalakkan amalan pertanian mampan dalam kalangan pekebun kecil sawit Orang Asli. Ini menekankan kepentingan memelihara pengetahuan lokal dan menjadikannya sebagai dasar pertanian mampan. Kajian ini membantu mengenal pasti halangan dan cabaran yang dihadapi oleh pekebun kecil dalam mengamalkan amalan mampan dan pembangunan intervensi yang disasarkan yang diperlukan terutamanya dari segi pendidikan generasi muda pekebun kecil Orang Asli. Penemuan ini memberikan pandangan yang relevan tentang status pendidikan Orang Asli dan boleh menjadi platform untuk kajian masa depan. Daya tahan pengetahuan lokal dalam kalangan

pekebun kecil Orang Asli memerlukan perhatian daripada agensi berkaitan. Pengiktirafan dan menghargai pengetahuan lokal adalah penting untuk menggalakkan amalan pertanian mampan dalam kalangan pekebun kecil Orang Asli. Walau bagaimanapun, penemuan ini terhad kepada kawasan Orang Asli terpilih dan tidak boleh mewakili keseluruhan pekebun kecil kelapa sawit Orang Asli di negara ini secara amnya.

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# ANALISIS SEMANTIK INKUISITIF UNTUK MENGESAN PEMIKIRAN TINGGI MASYARAKAT MELAYU DALAM FILEM KLASIK P. RAMLEE

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## EXTENDED ABSTRACT

## ABSTRAK

Filem ialah karya seni yang mencerminkan akal budi dan keintelektualan suatu masyarakat melalui penggunaan bahasa implisit. Untuk memahami makna sebenarnya, bahasa implisit dalam filem tidak dapat ditafsirkan secara harfiah saja. Oleh itu, penelitian ini dilakukan untuk mengesan dan menganalisis ujaran implisit dalam filem, serta mengesan akal budi dan keintelektualan masyarakat yang ditampilkan. Penelitian ini bersifat kualitatif dan menggunakan lima filem klasik P. Ramlee sebagai sumber data, iaitu "Nujum Pak Belalang," "Musang Berjanggut," "Pendekar Bujang Lapok," "Sarjan Hassan," dan "Bujang Lapok.". Satu ujaran implisit terpilih daripada setiap filem dianalisis menggunakan pendekatan semantik inkuisitif

oleh Nor Hashimah Jalaluddin (2014), yang melibatkan tiga tahap analisis iaitu semantik skrip, semantik resonans, dan semantik inkuisitif. Analisis juga dibantu oleh Teori Relevans daripada Sperber dan Wilson (1986,1995) serta rangka rujuk silang daripada Kempson (1986). Hasil penelitian menunjukkan bahawa filem klasik P. Ramlee dengan bahasa implisit dalam dialognya mencerminkan akal budi dan keintelektualan masyarakat Melayu yang tinggi, dan unsur tersirat dalam filem dapat diungkapkan melalui pelbagai disiplin ilmu. Penelitian ini dapat digunakan sebagai panduan untuk pentafsiran makna yang lebih bersifat peka konteks.

## Pengenalan

Kajian ini meneliti filem-filem arahan Seniman Agong Malaysia, Allahyarham Tan Sri P. Ramlee, dengan fokus pada aspek kebijaksanaan dalam dialog filem beliau. Filem merupakan seni yang berfungsi sebagai hiburan dan medium penyampaian mesej. Filem P. Ramlee terkenal dengan cerita yang menarik dan dialog yang sarat dengan mesej penting dan mampu menarik perhatian penonton dengan jalan cerita yang lucu, lakonan yang memukau, dialog yang sarat dengan mesej-mesej penting seperti politik, percintaan, keagamaan, dan sebagainya yang diselitkan dengan penggunaan bahasa berbentuk tersirat. Bagi bahasa tersirat atau berimplisit ini, pengkaji mendapati ada makna sebenar yang dihajati untuk disampaikan kepada audiens, cuma P. Ramlee tidak menyampaikannya secara langsung. Terpulang kepada pihak audiens untuk mentafsirnya.

## Metodologi Kajian

Kajian ini merupakan kajian deskriptif yang menggunakan kaedah analisis kandungan, dengan menganalisis lima filem P. Ramlee yang paling banyak ditonton di YouTube pada saluran "nostalgiaWarna" dan "Black Parade Channel". Filem-filem ini dipilih kerana mewakili pelbagai genre. Pengkaji menanda perbualan serta memilih leksikal berimplisit dalam transkripsi dialog dan menganalisisnya menggunakan pendekatan Semantik Inkuisitif oleh Nor Hashimah Jalaluddin (2014), dengan bantuan Teori Relevans Sperber dan Wilson (1986, 1995) dan rangka rujuk silang Kempson (1986). Satu data dialog daripada setiap filem yang dikenal pasti mengandungi makna implisit dianalisis. Analisis dilakukan dalam tiga tahap: semantik skrip, semantik resonans, dan semantik inkuisitif, untuk memahami makna implisit dan mengesan keintelektualan masyarakat di sebalik dialog berkenaan.

## Dapatan Kajian

Dikemukakan satu contoh dapatan kajian. Data diambil daripada filem "Nujum Pak Belalang" iaitu "engkau tumbuklah arang-arang dekat dapur tu". Setelah dianalisis pada tahap Tahap 1: Semantik Skrip, didapati dialog ini secara harfiah menunjukkan Pak Belalang meminta anaknya menggunakan arang sebagai pengganti kopi kerana mereka tidak mempunyai kopi. Analisis tahap ini hanya melihat makna literal tanpa konteks yang lebih mendalam. Pada Tahap 2: Semantik Resonans, analisis melibatkan pemahaman makna tersirat melalui konteks dan keupayaan kognitif. Penggunaan arang sebagai pengganti kopi didapati mencerminkan kemalasan dan kemiskinan. Ini juga mengkritik kemalasan Pak Belalang dan menunjukkan kesukaran hidup keluarganya.Tahap analisis terakhir iaitu Tahap 3 analisis Semantik Inkuisitif telah

dapat mengaitkan penggunaan arang dengan peribahasa Melayu yang melambangkan kerugian dan ketekunan. Ia juga menilai nilai budaya dan intelektual, serta ajaran Islam tentang menghormati tetamu. Penggunaan arang menunjukkan usaha bijak untuk menghormati tetamu meskipun dalam keadaan kemiskinan, mencerminkan nilai budaya Melayu. Didapati, penggunaan arang dalam data ini melambangkan makna sosial dan budaya yang lebih mendalam, termasuk kritikan terhadap kemalasan dan penekanan pada kebijaksanaan, ketekunan dan menghormati tetamu dalam kehidupan masyarakat Melayu.

## Perbincangan

Interpretasi makna dalam kajian ini melibatkan ilmu semantik, pragmatik, dan faktor bukan linguistik, serta meninjau ilmu multidisiplin. Nor Hashimah Jalaluddin (1992) menyatakan bahawa semantik saja tidak cukup untuk meneliti ujaran berimplisit karena hanya memberikan makna harfiah yang kabur. Oleh itu, semantik memerlukan bantuan pragmatik untuk memberikan maklumat bukan linguistik yang menjelaskan makna dengan lebih baik. Pragmatik membantu menjelaskan kekaburan yang tidak dapat dijelaskan oleh semantik. Semantik dan pragmatik saling melengkapi untuk menginterpretasi ujaran dengan tepat. Berdasarkan saranan Nor Hashimah, kajian ini menganalisis dialog berimplisit dalam filem P. Ramlee untuk meninjau peranan kedua-dua ilmu dalam interpretasi makna. Pendekatan semantik inkuisitif yang digunakan untuk menganalisis data menunjukkan bahawa dialog implisit dalam filem P. Ramlee mencerminkan sifat dan sikap masyarakat Melayu serta menyampaikan pesan penting secara tersirat.

## Kesimpulan

Melalui tiga tahap analisis, kajian ini mengungkap cara makna literal, kognitif, dan konteks memainkan peranan dalam menafsirkan dialog berimplisit. Dengan mengaitkan keupayaan kognitif dan pendekatan multidisiplin, kajian ini menunjukkan bahawa dialog tersirat dalam filem P. Ramlee berfungsi bukan sahaja sebagai alat komunikasi yang kompleks tetapi juga sebagai cerminan pemikiran dan nilai masyarakat Melayu. Pendekatan semantik inkuisitif membolehkan pemahaman yang lebih mendalam mengenai makna sebenar di sebalik ujaran berimplisit, memberikan wawasan yang relevan dalam konteks linguistik dan budaya.

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# RESEARCH ON THE INFLUENCING FACTORS AND IMPROVING STRATEGIES OF NON-MUSIC MAJOR STUDENTS' MUSIC LEARNING

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## EXTENDED ABSTRACT

The Ministry of Education of China (2022) explicitly requested to further promote university music education and create a music curriculum system combining classroom teaching with practical activities. As the director of the art education center of a national key university, the author must adjust the existing music teaching model according to the requirements of the Ministry of Education to adapt to the country's educational vision for undergraduates. The research on music education was rich, but effective music learning of non-music majors was limited. Considering the huge group of non-music students, this study is meaningful, and the result may improve their music learning effect to some extent. We use quantitative research methods to

determine the factors that affect the music learning of non-music students and put forward effective strategies to improve the music learning effect of them.

Keywords: Improving Strategies; Influencing Factors; Music Learning; Non-music Major Students

## Literature Review

In China's comprehensive universities (In this study, it refers to universities without music major), music courses are offered as elective courses as humanities or humanities arts courses. Students of different majors can participate in music learning by taking music lessons, these students are collectively referred to as non-music students. In 2022, China's Ministry of Education issued the Guiding Outline of Public Art Courses in Colleges and Universities (China Ministry of Education, 2022), which clearly proposed to further improve students' aesthetic quality and cultivate their practical ability, laying a theoretical foundation for the further development of music teaching.

People are more and more interested in the theme of influencing factors in music teaching (Concina, 2023), and music educators may adopt different methods and strategies to effectively achieve the planned educational goals. In addition to adapting to the specific learning environment, including different social, cultural and economic backgrounds (Concina, 2023), teachers must also adapt to each student and consider their personal characteristics, attitudes, goals, needs and potentials. In other words, students play an increasingly important role in the teaching process (Finefter-Rosenbluh et al., 2021). Different teaching purposes have different teaching emphases (Wang, 2020): Professional music education focuses on practical music education,

cultivating students' music skills and becoming professional music talents. At the same time, we should also have a solid accumulation of music theory knowledge; Non-professional music education focuses on listening and appreciation-oriented music culture education, which can improve students' comprehensive quality and promote their all-round development. Therefore, considering music education from the philosophical level, we should consider the multi-level and diversity of music education, and adopt a dialectical method to consider music education from multiple dimensions, instead of unilaterally measuring music education from a specific angle (Liu, 2022).

In China, the empirical research on the influencing factors of music learning effect is limited, and the research on improving the learning effect of non-music students is even more rare. Although the author has discussed the influence of non-music majors' music learning from the perspective of integrating culture into music education (Peng, 2019, 2020, 2022, 2023), it lacks an overall perspective. Through literature review, we find that how to improve music learning mainly focuses on the following topics: self-efficacy, learning attitude, interpersonal relationship, perceptual ability, learning environment, cultural background and the influence of new technology on music teaching. Since these themes focus more on the field of professional music, we will further clarify whether it also have an impact on music learning of non-music students.

**Self-Efficacy**

Self-efficacy is *"people's ability to judge their own organization and execution process, which needs to achieve a specified type of performance"* (Bandura, 1978). This perception is crucial to the success of the teaching process (Ferreira et al., 2023).

Self-efficacy beliefs in different fields have become an important determinant of students' effective use of self-regulation skills and strategies, as well as various motivations and academic success indicators.

Enriched music and cultural activities may have a positive impact on self-efficacy (Gallardo et al., 2021). When learners complete their tasks, they will get self-feedback and others' feedback on their progress. The belief of making progress confirms their self-efficacy and thus enhances the incentive effect (Du,2021). Gallardo et al. (2021) assessed the influence of music and humanities on self-efficacy. The students who participated in the study were divided into the intervention group and the control group. The students in the intervention group participated in a series of music activities and music courses. The results show that compared with the control group, the self-efficacy of the students in the intervention group has changed positively with the passage of time, and the students have achieved more favorable results under the mediation of self-efficacy. Du et al. (2021) conducted a quantitative study on students majoring in music in a school in Guizhou Province, China, and investigated the correlation between self-efficacy and performance anxiety of music majors. The results show that the lower the sense of self-efficacy, the higher the level of performance anxiety, and the difficulty of learning will affect the sense of self-efficacy to the greatest extent, followed by self-confidence and self-regulation efficacy. Therefore, Du et al. (2021) called for music teachers to arrange appropriate learning tasks according to students' different situations, encourage students and guide them to adjust themselves to difficulties and setbacks.

Music teachers should consider the different situations of non-music students when making teaching plans and arrange music activities purposefully to enhance the

effectiveness of learning. Through literature, it is found that although self-efficacy has been applied to music education, there are not many empirical cases.

**Learning Attitude**

People's behavior reflects their values (Bandura, 1986). When students think their goals are consistent with their results, they will be motivated to achieve them. A positive learning attitude can lead to sufficient preparation for learning and promote learning input (Huang & Wang, 2022; Petrie, 2022).

Some scholars have discussed the relationship between learning attitude and learning effect from the perspective of teaching method design. Huang & Wang (2022) paid attention to the relationship between learning experience and learning engagement in mixed teaching environment. Huang & Wang (2022) used the curriculum satisfaction scale, learning attitude scale and learning engagement scale to distribute 216 copies to undergraduates in a university in China for a test. According to the research hypothesis, a structural equation model is constructed, in which students' gender, grade, subject and place of origin are included as control variables. The results show that course satisfaction can significantly predict students' learning attitude, and learning attitude also has a significant positive impact on learning engagement. Petrie (2022) also conducted a similar study with Huang & Wang (2022). Petrie (2022) investigated the extent to which using Sonic Pi, a free teaching platform in music teaching, helped to promote students' positive attitude towards music learning. Sonic Pi is a free domain-specific programming platform that enables beginners to encode music. Research shows that students' attitude may be improved by contacting music creation, programming or Sonic Pi platform. Therefore, music teachers should broaden the teaching channels and promote students' attitude

towards music learning with the help of effective learning platforms, thus enhancing the effectiveness of music learning.

**Communication**

In the field of education, experts generally believe that communication ability has become an important standard to measure talents (Todd, 2020; Mehall et al., 2021; Krajewska, 2023). Good communication skills help students to consult teachers and communicate with classmates, to form in-depth exploration of knowledge, achieve more profound learning effects, and enable students to form a good learning atmosphere.

Todd (2020) explored the relationship between communication behavior and cohesion of music groups. In-depth interviews were conducted with 10 professional music instructors and 10 adult music students who were also music directors. Participants indicated that positive communication behavior established and supported the cohesion and participation continuity of music groups. Krajewska (2023) further confirmed Todd's claim. Krajewska (2023) collected data by using three scales, aiming at checking the level of teaching cooperation between teachers and students at each stage of the education process. The research results show that it is necessary to improve the level of cooperation and mutual assistance between teachers and students and promote the actions and activities at each stage in the education process, because the achieved effects are interdependent, and they mutually determine the quality of education.

In addition, purposeful interpersonal interaction is defined as any high-quality, organic and effective communication between two or more participants in the learning process, including interaction between learners and interaction between learners and

teachers. These exchanges are directly related to the realization of learning achievements or the establishment of social relations. Research by Mehall et al. (2021) shows that purposeful interpersonal interaction is related to students' satisfaction and perceived learning. However, Mehall et al. (2021) further added that the way of interpersonal interaction does not seem to be "the more the better". Overwhelming interaction may reduce students' satisfaction or perceived learning, which means that the benefits of interpersonal communication may have a saturation point (Mehall et al., 2021).

**Perception**

For individuals, learning is to know and express new feelings (Gamboa et al., 2021), and students who perceive positive learning experience and make efforts in learning are more likely to achieve academic success (Guo et al., 2023).

Perception of music learning environment seems to promote music learning. The continuous updating of information technology has brought new opportunities to the music education industry and created a more efficient music learning environment. Mora et al. (2021) evaluated students' performance through two teaching strategies, namely, the game strategy of using game tools and the traditional strategy of using master classes. The comparison of the performance of the two groups of students before and after the test shows that although these two strategies are effective, the average growth rate of the experimental group is 72%, while that of the control group is 56%, and the results are quite different. And the experimental group always performs better in the application test. This shows that virtual reality technology can build a new teaching platform and become an auxiliary tool for music teaching. Guo et al. (2023) used longitudinal design to explore students' participation in music

learning. The SEM model shows that students' learning style is influenced by learning environment, and the simultaneous interaction among learners, tasks and situations ultimately determines students' learning style. Guo et al. (2023) further added that students' positive perception of music learning environment will improve their participation and deeper learning, and the improvement of participation will produce better learning results.

**Combination of Culture and Music**

Cultural factors may affect and promote music teaching. Bond & Russell (2021) called on music teachers to teach music in a real cultural environment, and at the same time, to take different cultures into account in evaluating the content and process. Doing so will help students share their own music learning and understanding. Vidulin (2022) took 557 students aged 10-11 in Croatian schools as subjects and compared the different feelings of two different music teaching methods to students. The results show that in the process of listening to music, the subjects' thinking is mostly related to the content of the music and the relevance of their own cultural environment. The higher the frequency of listening, the more positive the subjects' thinking about the music content or their views on the creative background of the music works.

The sample of this study is from Dalian Maritime University in China. It is a maritime university affiliated to the Ministry of Transport of China. From the perspective of maritime culture, music education naturally presents the characteristics of maritime culture. Integrating maritime culture into music education requires effective teaching methods. Jiang (2023) conducted related research. Jiang (2023) found that the existing basic music courses already contain contents related to

maritime culture. However, teachers need to explain the basic knowledge of music while teaching, and further extend it to a broader maritime cultural context, so that students can "learn culture through music and feel music through culture". Jiang(2023) listed some examples: in the course of Introduction to National Music, teachers took the folk songs such as ocean songs and fishing songs as examples to tell the maritime cultural memory and marine spirit inheritance behind these folk songs; In the teaching of World Folk Music, the musical culture of the Silk Road on land and the musical culture of the Silk Road on the sea are taken as the teaching contents of the first semester and the second semester of the school year respectively, so as to guide students to explore the highlights of the world musical culture in a relatively concentrated and in-depth way. In teaching, in addition to using teaching materials, we also make full use of social media to broaden the channels of knowledge acquisition. From the teaching effect, students' enthusiasm for classroom participation is generally high, and the interaction between teachers and students is very active.

In addition, the form of integrating maritime culture into music education is not limited to classroom teaching, but also different theme experience activities can be held according to the school's own characteristics. China Maritime Museum held a series of maritime music activities, among which the "3070 Ocean Music Festival" in the "maritime season" had a great influence. By excavating and displaying the maritime spirit and charm, it appealed to the public to pay attention to, love and protect the ocean. At the same time, China Maritime Museum has also launched a series of musical dramas and popular science dramas with maritime themes, all of which received good response (Zhang, 2021).

For many years, the author has been trying to integrate maritime culture into daily teaching. In 2018, based on alumnus Wang Yafu, the author and non-music students jointly created the stage play Wang Yafu. The drama integrates the history of China's maritime development, characters' deeds and the development of domestic and foreign industries, and integrates maritime culture into music teaching, showing the deeds of the older generation of seafarers who devoted themselves to China's higher maritime education and maritime career, so that students can feel the maritime spirit in the immersive music experience. The play won 33 awards in the National College Students' Art Exhibition (2018). In 2022, the author and non-music students co-edited the musical drama "Han Hai Kun Peng". By participating in the creation and performance, students can improve their musical skills and deepen their understanding of maritime culture. In addition, the author and non-music students have jointly created more than ten musical works related to maritime culture, which were broadcast in the mainstream media in China (2019,2020,2021,2022 and 2023). Through the relevant teaching experience in the past, it can be confirmed to some extent that culture has an impact on music learning.

**Music Learning Environment**

To constantly explore and improve the teaching means, channels and methods that students are interested in, and enhance the scientific and interactivity of music education, scholars call for paying attention to the creation of music teaching environment. Before designing teaching, we should first understand the environment and then comprehensively evaluate the learning objectives (Cruywagen & Potgieter, 2020). In South Africa, to further optimize teaching, Cruywagen & Potgieter (2020) conducted a focus group interview to explore the feelings of 45 music majors in the

blending learning environment. The interview shows that students have a positive attitude towards student-centered blending learning. At the same time, embedding students' previous experiences into music learning can better help students form an understanding of music. Ouyang (2023) conducted an experiment in a university in China (n=30). The experiment was divided into three stages, and students were divided into experimental group and control group. After implementing different teaching strategies, there were significant differences in statistical analysis data between the two groups, the experimental group (87.50) and the control group (65.37). The research results show that when teachers accurately design teaching content according to students' actual situation, students will feel comfortable classroom environment, increase classroom participation and reduce absenteeism.

The learner-centered online music learning model is developing rapidly (Jin et al., 2019). Take Rain Classroom, a popular intelligent classroom service platform in China higher education market, as an example. This learning platform can record students' attendance according to login information and display the current number of students online. During the lecture, the teacher's courseware can be synchronized to the mobile phone client interactive system for students to track the teaching content in real time. Teachers can ask questions online and teach offline at the same time. Students' answers to some questions through WeChat applet can be displayed intuitively through the classroom projector. Through online and offline teaching interaction, teachers can improve students' enthusiasm to participate in the classroom and emphasize or adjust the teaching content in time according to students' feedback. Jin et al. (2019) recruited 335 students to investigate the use of teaching platform. Descriptive statistical results show that intelligent classroom service is quite feasible

for college students. Students have a positive attitude towards the use of intelligent classroom, thinking that intelligent classroom is easy to use, but it seems that it lacks enough entertainment elements. Xu (2022) made a further study and thought that the intelligent service platform had three obvious characteristics in the process of assisting music teaching in universities in China: openness, timeliness and autonomy. Students can get learning resources more easily, watch the difficulties and key points of the course repeatedly at any time, and choose their own music learning areas of interest. Although most students have a positive attitude towards intelligent platform-assisted teaching methods, Xu (2022) further expressed his concern that music courses often exist in China comprehensive universities in the form of minor courses. Due to the limitation of class hours, the amount of information that teachers teach and present in class often cannot meet the needs of students. In addition, students will be polarized due to different self-control. Students with strong self-control ability are stricter with themselves, while students with weak self-control ability may go downhill.

Multi-channel music teaching has become the inevitable trend of its future development, but how to carry out more effective integration and how to design a better teaching model requires policy makers and music teachers to seriously think and practice for a long time.

**Artificial Intelligence (AI) in Music Education**

With the development of modern science and technology, AI has been widely used in music education, breaking the traditional music education model, greatly improving the quality of music teaching and expanding the music teaching model. A

common way to define AI in education is any application of AI technology or method in education system (An & Oliver, 2021).

Music art, as a special way for human beings to grasp the world with emotion and imagination, was previously considered difficult to be replaced by AI technology (Zhang, 2022), but today, a lot of artistic work can be completely replaced by AI technology represented by GPT. For example, students can participate in the creation, interpretation and display of music works through real-time dialogue with GPT technology. This interactive way helps to improve students' participation and make music works more attractive and infectious.

It seems feasible to use AI technology in music teaching for non-music students. Firstly, provide students with a richer and more immersive experience, especially for students without music learning background. The organic integration of AI technology and music education enriches classroom teaching resources (Civit et al., 2022), which improved the technical means of music education (Yu et al., 2023).

Secondly, create a personalized music experience. In the AI environment, the algorithm can constantly self-iterate based on students' feedback, provide students with personalized learning, provide reliable teaching suggestions to teachers, and realize differentiated teaching (Civit et al., 2022), which greatly improves the efficiency of non-music students in mastering knowledge. What teachers and students gain is not only the novel experience, and the broadening of knowledge brought by science and technology, but also the expansion of educational concepts and models, and finally the improvement of efficiency and quality (Zhang, 2022).

Thirdly, it can greatly alleviate the situation that there are too many students but not enough music teachers (Chen,2022), and at the same time reduce the difficulty

of teaching and improve the quality of classroom teaching (Maba, 2020). For example, teachers only need to guide and inspire students, and then students can complete music creation by using AI technology according to the content and requirements of creation. For students who lack professional music training background, it greatly expands the channels of music practice. Although this will greatly improve the efficiency of music teachers, because the AI music creation system is created according to the harmony and structure of music in the inherent database, it is easy to produce works with similar melodies, which makes students' personalized expression and emotional expression of their creative works lacking, so teachers need to guide them in time and students need to think independently (Maba, 2020).

Finally, it can also play an important role in teaching evaluation. Teaching evaluation is an activity that teachers collect, analyze and utilize students' learning information to judge students' learning situation, understand their own teaching effect and promote students' efficient learning (Chen, 2022). The emergence of artificial intelligence technology has greatly provided reliable support for education and teaching evaluation (Maba, 2020). The functions of face recognition, voice recognition, quantitative data, and students' classroom behavior analysis can quickly count and generate the analysis data of students' learning effect, learning state and learning ability, thus helping teachers to grasp students' attendance rate more quickly and comprehensively, understand students' learning situation, arrange teaching content and progress more reasonably, and improve the quality and efficiency of music teaching (Chen,2022).

Based on the above research background, this study intends to solve:

**RQ1**. What are the factors that affect the music learning of non-music students?

This study attempts to test the following hypotheses:

**H1:** *Learning attitude has a positive and significant effect on music learning.*

**H2:** *Self-efficacy has a positive and significant effect on music learning.*

**H3:** *Communication has a positive and significant effect on music learning.*

**H4:** *Perceptual ability has a positive and significant effect on music learning.*

**H5:** *AI technology has a positive and significant effect on music learning.*

**H6:** *The combination of culture and music education has a positive and significant effect on music learning.*

**H7:** *Music learning environment has a positive and significant effect on music learning.*

## Research Method

### Research Design

Based on positivism, survey is the most appropriate form of this study, because it allows researchers to solicit feedback from many potential participants, thus expanding the scope of data (Creswell, 2012).

We use simple random sampling to send questionnaires through the "student information exchange group" of WeChat. The answer time for students is two days. The "student information exchange group" is composed of undergraduates of different majors and grades in Dalian Maritime University, which can ensure the coverage of students of different majors and grades. Then, the reliability and validity of the valid questionnaire (n=527) were tested, and then statistical analysis was made by SPSS software.

## Instrument

We have followed the design investigation as suggested Creswell & Guetterman (2019) that is researchers find an existing instrument and modify it to meet their research needs. Literature review seems to show that there is no such instrument. Therefore, this researcher adopts of different scales and follows the suggestion of Dillman et al. (2009) to shorten the questionnaire appropriately.

The questionnaire of this study comes from "Learning Attitude Scale" (Cooper, 2021), "Music Performance Self-Efficiency Scale" (Cooper, 2021), "Interpersonal Communication Ability Scale" (Xu, 2019), "Perception Scale" (Mei *et al.*, 2019), "Overall Attitude Scale of Artificial Intelligence" (Schepman, 2020), "Multicultural Experience Assessment Scale" (Aytug et al., 2020) and "Professional Practice Environment Scale" (Zheng, 2022). Adopt Liken five-point scoring method to lay the foundation for later data collection and data analysis (Creswell & Guetterman ,2019).

## Sample

The target population of this study is non-music majors, and the sampling framework is Dalian Maritime University (DMU). As the director of DMU Art Education Center, this researcher has nearly 20 years of experience in music teaching and management and has a deep understanding of the problems existing in music teaching for non-music majors. Paying attention to DMU undergraduates will make it easier to obtain data and help to dig deeper problems. The problems existing in the teaching of non-music majors in China are also very similar (Chai, 2023), so the results of this study can also provide reference for other universities.

## Results and Discussion

### Descriptive Analysis

**Table 1**

*Description and Analysis of Basic Information*

| Item | Options | Frequency | Percentage (%) | Cumulative (%) |
|---|---|---|---|---|
| Gender | Male | 335 | 63.57 | 63.57 |
| | Female | 192 | 36.43 | 100.00 |
| Grade | 1 | 113 | 21.44 | 21.44 |
| | 2 | 82 | 15.56 | 37 |
| | 3 | 260 | 49.34 | 86.34 |
| | 4 | 72 | 13.66 | 100.00 |
| Subject | Science | 45 | 8.54 | 8.54 |
| | Engineering | 303 | 57.5 | 66.03 |
| | Law | 41 | 7.78 | 73.81 |
| | Literature | 45 | 8.54 | 82.35 |
| | Economic | 44 | 8.35 | 90.7 |
| | Management | 49 | 9.3 | 100.00 |
| Whether to join a music club? | Yes | 189 | 35.86 | 35.86 |
| | No | 338 | 64.14 | 100.00 |
| Whether to taken music classes? | Yes | 249 | 47.25 | 47.25 |
| | No | 278 | 52.75 | 100.00 |

A total of 527 questionnaires were collected, of which 63.57% were male and 36.43% were female. 113 freshmen, 82 sophomores, 260 juniors and 72 seniors; There are 45 science majors, 303 engineering majors, 41 law majors, 45 literature majors, 44 economics majors and 49 management majors; Most students have never

participated in the music club of the school, accounting for 64.14%; 278 students (52.75%) have not taken the elective courses of music offered by the school.

**Reliability Analysis**

**Table 2**

*Cronbach Reliability Analysis*

| Dimension | Terms | Simple size | Cronbach αcoefficient |
|---|---|---|---|
| Music learning attitude | 11 | 527 | 0.922 |
| Self-efficacy | 14 | 527 | 0.931 |
| Communication | 13 | 527 | 0.947 |
| Perception | 8 | 527 | 0.902 |
| AI technology | 6 | 527 | 0.890 |
| Culture | 6 | 527 | 0.888 |
| Learning environment | 6 | 527 | 0.873 |

In this analysis, the Cronbach α coefficient is used to test the reliability of the internal consistency of the questionnaire, that is, the internal consistency between the questionnaire topics. When the Cronbach α coefficient of the scale is higher than 0.6, it means that the reliability of internal consistency is acceptable; When it is higher than 0.7, it can mean that the internal consistency of the scale is good; As can be seen from the above table, the values of the cloned Bach α coefficients corresponding to the eight dimensions designed in this paper are 0.944, 0.922, 0.931, 0.947, 0.902, 0.890, 0.888 and 0.873, which are all greater than 0.7, indicating that the results of this survey are extremely reliable and the questionnaire results are highly reliable, so further analysis can be carried out.

**Validity Analysis**

**Table 3**

*KMO and Bartlett tests*

| | | |
|---|---|---|
| KMO value | | 0.911 |
| Bartlett test | *Approximate chi-square* | 26537.886 |
| | *df* | 3160 |
| | *p* value | <0.001 |

By Using factor analysis to carry out information concentration research, first analyze whether the research data is suitable for factor analysis. As can be seen from the above table, KMO is 0.911, which is greater than 0.6, which meets the prerequisite requirements of factor analysis, which means that the data can be used for factor analysis research. And the data passed the Bartlett sphericity test ($p<0.05$), indicating that the research data is suitable for factor analysis.

**Table 4**

*Variance Interpretation Rate*

| Factor number | Characteristic root | | | Explanatory rate of rotation front difference | | | Explanatory rate of variance after rotation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative % |
| 1 | 11.349 | 14.186 | 14.186 | 11.349 | 14.186 | 14.186 | 8.791 | 10.989 | 10.989 |
| 2 | 8.293 | 10.366 | 24.552 | 8.293 | 10.366 | 24.552 | 8.06 | 10.075 | 21.064 |
| 3 | 6.605 | 8.257 | 32.809 | 6.605 | 8.257 | 32.809 | 7.47 | 9.337 | 30.402 |
| 4 | 5.689 | 7.111 | 39.921 | 5.689 | 7.111 | 39.921 | 6.272 | 7.84 | 38.242 |
| 5 | 4.518 | 5.647 | 45.568 | 4.518 | 5.647 | 45.568 | 4.777 | 5.971 | 44.213 |

| Factor number | Characteristic root | | | Explanatory rate of rotation front difference | | | Explanatory rate of variance after rotation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% |
| 6 | 3.879 | 4.848 | 50.416 | 3.879 | 4.848 | 50.416 | 3.928 | 4.91 | 49.123 |
| 7 | 3.512 | 4.391 | 54.807 | 3.512 | 4.391 | 54.807 | 3.897 | 4.871 | 53.993 |
| 8 | 3.085 | 3.856 | 58.663 | 3.085 | 3.856 | 58.663 | 3.736 | 4.67 | 58.663 |
| 9 | 1.036 | 1.295 | 59.958 | | | | | | |
| 10 | 0.873 | 1.091 | 61.049 | | | | | | |
| 11 | 0.837 | 1.047 | 62.096 | | | | | | |
| 12 | 0.817 | 1.021 | 63.117 | | | | | | |
| 13 | 0.797 | 0.996 | 64.113 | | | | | | |
| 14 | 0.764 | 0.955 | 65.068 | | | | | | |
| 15 | 0.753 | 0.941 | 66.009 | | | | | | |
| 16 | 0.742 | 0.927 | 66.936 | | | | | | |
| 17 | 0.726 | 0.908 | 67.844 | | | | | | |
| 18 | 0.719 | 0.899 | 68.744 | | | | | | |
| 19 | 0.708 | 0.885 | 69.628 | | | | | | |
| 20 | 0.698 | 0.872 | 70.501 | | | | | | |
| 21 | 0.689 | 0.861 | 71.362 | | | | | | |
| 22 | 0.664 | 0.83 | 72.192 | | | | | | |
| 23 | 0.654 | 0.818 | 73.01 | | | | | | |
| 24 | 0.651 | 0.813 | 73.823 | | | | | | |
| 25 | 0.635 | 0.794 | 74.617 | | | | | | |
| 26 | 0.626 | 0.782 | 75.399 | | | | | | |
| 27 | 0.611 | 0.764 | 76.163 | | | | | | |
| 28 | 0.601 | 0.751 | 76.914 | | | | | | |
| 29 | 0.589 | 0.736 | 77.649 | | | | | | |

| Factor number | Characteristic root | | | Explanatory rate of rotation front difference | | | Explanatory rate of variance after rotation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% |
| 30 | 0.575 | 0.719 | 78.369 | | | | | | |
| 31 | 0.568 | 0.709 | 79.078 | | | | | | |
| 32 | 0.56 | 0.7 | 79.778 | | | | | | |
| 33 | 0.552 | 0.69 | 80.468 | | | | | | |
| 34 | 0.547 | 0.683 | 81.152 | | | | | | |
| 35 | 0.53 | 0.663 | 81.814 | | | | | | |
| 36 | 0.525 | 0.656 | 82.47 | | | | | | |
| 37 | 0.519 | 0.648 | 83.119 | | | | | | |
| 38 | 0.498 | 0.622 | 83.741 | | | | | | |
| 39 | 0.494 | 0.618 | 84.358 | | | | | | |
| 40 | 0.486 | 0.607 | 84.966 | | | | | | |
| 41 | 0.482 | 0.603 | 85.569 | | | | | | |
| 42 | 0.469 | 0.586 | 86.155 | | | | | | |
| 43 | 0.464 | 0.58 | 86.734 | | | | | | |
| 44 | 0.451 | 0.564 | 87.299 | | | | | | |
| 45 | 0.447 | 0.559 | 87.858 | | | | | | |
| 46 | 0.441 | 0.551 | 88.409 | | | | | | |
| 47 | 0.435 | 0.543 | 88.952 | | | | | | |
| 48 | 0.424 | 0.53 | 89.482 | | | | | | |
| 49 | 0.411 | 0.514 | 89.995 | | | | | | |
| 50 | 0.404 | 0.505 | 90.5 | | | | | | |
| 51 | 0.389 | 0.487 | 90.987 | | | | | | |
| 52 | 0.384 | 0.48 | 91.467 | | | | | | |
| 53 | 0.383 | 0.478 | 91.945 | | | | | | |

| Factor number | Characteristic root | | | Explanatory rate of rotation front difference | | | Explanatory rate of variance after rotation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% |
| 54 | 0.371 | 0.463 | 92.409 | | | | | | |
| 55 | 0.37 | 0.462 | 92.871 | | | | | | |
| 56 | 0.353 | 0.442 | 93.313 | | | | | | |
| 57 | 0.34 | 0.424 | 93.737 | | | | | | |
| 58 | 0.333 | 0.416 | 94.154 | | | | | | |
| 59 | 0.326 | 0.408 | 94.562 | | | | | | |
| 60 | 0.321 | 0.402 | 94.963 | | | | | | |
| 61 | 0.31 | 0.388 | 95.351 | | | | | | |
| 62 | 0.304 | 0.38 | 95.732 | | | | | | |
| 63 | 0.297 | 0.371 | 96.103 | | | | | | |
| 64 | 0.288 | 0.36 | 96.463 | | | | | | |
| 65 | 0.271 | 0.338 | 96.802 | | | | | | |
| 66 | 0.266 | 0.333 | 97.135 | | | | | | |
| 67 | 0.262 | 0.327 | 97.462 | | | | | | |
| 68 | 0.246 | 0.307 | 97.769 | | | | | | |
| 69 | 0.231 | 0.289 | 98.058 | | | | | | |
| 70 | 0.219 | 0.274 | 98.332 | | | | | | |
| 71 | 0.215 | 0.269 | 98.601 | | | | | | |
| 72 | 0.214 | 0.267 | 98.868 | | | | | | |
| 73 | 0.185 | 0.231 | 99.099 | | | | | | |
| 74 | 0.139 | 0.174 | 99.273 | | | | | | |
| 75 | 0.133 | 0.166 | 99.439 | | | | | | |
| 76 | 0.115 | 0.144 | 99.583 | | | | | | |
| 77 | 0.105 | 0.132 | 99.715 | | | | | | |

| Factor number | Characteristic root | | | Explanatory rate of rotation front difference | | | Explanatory rate of variance after rotation | | |
|---|---|---|---|---|---|---|---|---|---|
| | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% | Characteristic root | Variance explanation rate% | Cumulative% |
| 78 | 0.098 | 0.122 | 99.837 | | | | | | |
| 79 | 0.083 | 0.103 | 99.941 | | | | | | |
| 80 | 0.048 | 0.059 | 100 | | | | | | |

The above table analyzes the factor extraction and the information content of factor extraction. From the above table, eight factors are extracted by factor analysis, and the characteristic root values are all greater than 1. The variance interpretation rates of these eight factors after rotation are 10.989%, 10.075%, 9.337%, 7.84%, 5.971%, 4.91% and 4.871% respectively. In other words, the number of factors that can be extracted from the data extracted from the scale is the same as the number of dimensions involved in our questionnaire, indicating that the design structure of the questionnaire and the response of the data results have a certain degree of fit, but it is not clear whether the data results of each question can correctly correspond to the corresponding factors (topics in the same dimension should correspond to the same factors). To verify whether each question corresponds to the correct factors, the maximum variance rotation method is needed, and the results are as follows:

**Table 5**

*Load Factor after Rotation*

| Item | Factor load factor | | | | | | | | Common degree (common factor variance) |
|---|---|---|---|---|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | Factor 8 | |
| Q6 | **0.966** | -0.036 | 0.046 | 0.065 | 0.039 | 0.041 | 0.024 | 0.051 | 0.947 |
| Q7 | **0.705** | -0.013 | 0.005 | 0.037 | 0.019 | 0.025 | 0.02 | 0.107 | 0.512 |
| Q8 | **0.705** | 0.046 | 0.061 | 0.087 | 0.062 | 0.034 | 0.013 | 0.129 | 0.532 |
| Q9 | **0.703** | 0.004 | 0.064 | 0.095 | 0.064 | 0.027 | 0.051 | 0.048 | 0.516 |
| Q10 | **0.698** | -0.04 | 0.021 | 0.049 | 0.087 | 0.048 | 0.019 | 0.042 | 0.504 |
| Q11 | **0.717** | 0.024 | 0.061 | 0.054 | 0.029 | 0.049 | 0.057 | 0.016 | 0.528 |
| Q12 | **0.682** | 0.03 | 0.116 | 0.034 | 0.062 | 0.017 | 0.013 | 0.029 | 0.486 |
| Q13 | **0.718** | -0.008 | 0.093 | 0.034 | 0.047 | 0.123 | 0.046 | 0.005 | 0.545 |
| Q14 | **0.715** | -0.014 | 0.024 | 0.073 | 0.047 | 0.036 | 0.02 | 0.106 | 0.532 |
| Q15 | **0.702** | -0.036 | 0.065 | 0.048 | 0.043 | 0.05 | 0.021 | 0.028 | 0.506 |
| Q16 | **0.698** | -0.027 | 0.044 | 0.065 | 0.093 | -0.027 | 0.048 | 0.056 | 0.509 |
| Q17 | **0.697** | -0.114 | 0.063 | 0.043 | 0.003 | 0.052 | 0.034 | 0.023 | 0.509 |
| Q18 | **0.74** | -0.005 | 0.07 | 0.031 | 0.055 | -0.003 | -0.02 | -0.004 | 0.556 |
| Q19 | **0.715** | -0.051 | 0.073 | 0.038 | 0.075 | 0.042 | 0.023 | 0.021 | 0.529 |
| Q20 | **0.725** | -0.02 | 0.073 | 0.017 | 0.014 | 0.054 | 0.05 | 0.001 | 0.537 |
| Q21 | **0.709** | -0.027 | 0.059 | 0.077 | 0.002 | 0.014 | 0.089 | 0.053 | 0.524 |
| Q22 | 0.029 | 0.028 | 0.038 | **0.951** | 0.033 | 0.024 | -0.013 | 0.022 | 0.91 |
| Q23 | 0.087 | 0.039 | 0.025 | **0.684** | 0.041 | 0.081 | -0.036 | 0.047 | 0.49 |
| Q24 | 0.099 | 0.036 | 0.073 | **0.708** | 0.038 | 0.033 | 0.061 | 0.097 | 0.534 |
| Q25 | 0.04 | -0.015 | 0.014 | **0.726** | 0.075 | 0.083 | 0.019 | 0.053 | 0.545 |
| Q26 | 0.058 | 0.03 | 0.05 | **0.74** | 0.044 | 0.083 | -0.014 | 0.049 | 0.565 |
| Q27 | 0.081 | -0.009 | 0.059 | **0.723** | 0.045 | 0.016 | 0.065 | -0.007 | 0.539 |
| Q28 | 0.062 | 0.055 | 0.049 | **0.708** | -0.016 | 0.021 | -0.021 | 0.101 | 0.522 |

| Item | Factor load factor | | | | | | | | Common degree (common factor variance) |
|---|---|---|---|---|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | Factor 8 | |
| Q29 | 0.101 | -0.02 | 0.003 | **0.724** | 0.056 | -0.006 | 0.016 | 0.041 | 0.539 |
| Q30 | 0.051 | -0.002 | 0.077 | **0.723** | 0.039 | 0.088 | 0.031 | 0.092 | 0.549 |
| Q31 | 0.063 | 0.041 | 0.041 | **0.732** | 0.083 | -0.033 | 0.055 | 0.037 | 0.556 |
| Q32 | 0.062 | 0.022 | 0.029 | **0.698** | 0.101 | 0.012 | 0.013 | 0.03 | 0.503 |
| Q33 | 0.034 | -0.032 | **0.944** | 0.038 | 0.019 | 0.031 | -0.04 | -0.017 | 0.897 |
| Q34 | 0.074 | -0.039 | **0.68** | <0.001 | -0.03 | 0.004 | -0.014 | 0.091 | 0.479 |
| Q35 | 0.045 | -0.036 | **0.722** | 0.045 | 0.029 | 0.034 | -0.023 | -0.019 | 0.529 |
| Q36 | 0.085 | -0.015 | **0.718** | 0.044 | 0.041 | 0.02 | 0.006 | -0.066 | 0.532 |
| Q37 | 0.082 | -0.013 | **0.702** | 0.02 | 0.025 | -0.018 | -0.015 | -0.03 | 0.502 |
| Q38 | 0.001 | -0.063 | **0.682** | 0.03 | 0.059 | -0.024 | 0.054 | 0.025 | 0.478 |
| Q39 | 0.077 | 0.042 | **0.72** | 0.08 | -0.004 | 0.053 | -0.108 | -0.049 | 0.55 |
| Q40 | 0.036 | -0.048 | **0.683** | 0.096 | 0.044 | -0.022 | 0.059 | 0.09 | 0.494 |
| Q41 | 0.132 | -0.028 | **0.714** | -0.004 | 0.044 | 0.048 | 0.025 | <0.001 | 0.533 |
| Q42 | 0.08 | -0.018 | **0.697** | 0.007 | 0.074 | 0.02 | 0.021 | -0.026 | 0.499 |
| Q43 | 0.078 | 0.013 | **0.697** | 0.035 | 0.039 | 0.047 | 0.049 | 0.041 | 0.501 |
| Q44 | 0.051 | -0.077 | **0.707** | 0.033 | 0.039 | 0.041 | -0.021 | 0.142 | 0.534 |
| Q45 | 0.039 | -0.022 | **0.704** | 0.07 | 0.063 | 0.019 | -0.03 | 0.008 | 0.508 |
| Q46 | 0.059 | -0.049 | **0.686** | -0.004 | 0.047 | 0.044 | -0.04 | 0.059 | 0.486 |
| Q47 | 0.014 | **0.861** | -0.02 | -0.023 | 0.025 | 0.02 | -0.047 | 0.006 | 0.745 |
| Q48 | 0.006 | **0.778** | -0.021 | -0.027 | -0.044 | 0.014 | -0.074 | -0.002 | 0.614 |
| Q49 | 0.005 | **0.799** | 0.02 | 0.014 | 0.055 | 0.027 | -0.039 | -0.001 | 0.645 |
| Q50 | -0.038 | **0.536** | 0.004 | 0.017 | -0.023 | 0.016 | 0.011 | 0.038 | 0.292 |
| Q51 | -0.045 | **0.798** | -0.043 | 0.024 | 0.021 | -0.004 | -0.018 | 0.006 | 0.642 |
| Q52 | -0.016 | **0.806** | -0.04 | 0.025 | 0.004 | -0.033 | 0.013 | -0.045 | 0.655 |
| Q53 | -0.019 | **0.8** | -0.033 | 0.018 | -0.036 | 0.002 | -0.002 | -0.009 | 0.643 |

| Item | Factor load factor | | | | | | | | Common degree (common factor variance) |
|---|---|---|---|---|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | Factor 8 | |
| Q54 | -0.033 | **0.785** | -0.055 | -0.001 | 0.026 | 0.019 | 0.002 | 0.058 | 0.624 |
| Q55 | -0.046 | **0.807** | -0.015 | 0.006 | -0.015 | 0.004 | -0.009 | 0.085 | 0.661 |
| Q56 | -0.057 | **0.764** | -0.064 | 0.043 | 0.069 | -0.02 | -0.014 | 0.068 | 0.603 |
| Q57 | -0.018 | **0.796** | 0.01 | 0.02 | 0.034 | 0.079 | -0.027 | 0.014 | 0.643 |
| Q58 | 0.02 | **0.809** | -0.065 | 0.082 | 0.038 | -0.033 | 0.01 | 0.03 | 0.67 |
| Q59 | -0.031 | **0.791** | -0.09 | 0.019 | -0.03 | -0.045 | -0.037 | -0.008 | 0.64 |
| Q60 | 0.07 | -0.001 | 0.044 | 0.044 | **0.938** | -0.006 | 0.047 | 0.001 | 0.892 |
| Q61 | 0.071 | -0.074 | 0.089 | 0.089 | **0.727** | -0.027 | 0.045 | 0.017 | 0.559 |
| Q62 | 0.092 | 0.016 | 0.098 | 0.107 | **0.724** | -0.069 | 0.063 | 0.042 | 0.565 |
| Q63 | 0.054 | 0.046 | 0.02 | 0.014 | **0.768** | 0.04 | 0.042 | -0.015 | 0.599 |
| Q64 | 0.061 | 0.013 | 0.017 | 0.064 | **0.723** | 0.026 | 0.064 | 0.078 | 0.541 |
| Q65 | 0.081 | 0.049 | 0.002 | 0.073 | **0.721** | 0.019 | 0.02 | -0.053 | 0.538 |
| Q66 | 0.077 | 0.008 | 0.092 | 0.01 | **0.743** | 0.108 | 0.041 | 0.048 | 0.582 |
| Q67 | 0.122 | 0.041 | 0.099 | 0.12 | **0.704** | 0.054 | 0.051 | 0.009 | 0.542 |
| Q68 | 0.088 | 0.004 | 0.054 | 0.057 | 0.007 | **0.933** | 0.025 | 0.073 | 0.891 |
| Q69 | 0.051 | 0.009 | 0.008 | 0.035 | -0.015 | **0.795** | -0.034 | 0.009 | 0.637 |
| Q70 | 0.055 | -0.027 | 0.066 | 0.07 | 0.068 | **0.739** | 0.026 | 0.124 | 0.579 |
| Q71 | 0.104 | -0.004 | 0.031 | 0.083 | 0.043 | **0.74** | 0.049 | -0.03 | 0.572 |
| Q72 | 0.115 | 0.017 | 0.051 | 0.093 | 0.008 | **0.764** | -0.001 | 0.106 | 0.62 |
| Q73 | 0.063 | 0.045 | 0.042 | 0.036 | 0.028 | **0.769** | 0.007 | 0.098 | 0.611 |
| Q74 | 0.074 | -0.023 | -0.052 | 0.032 | 0.038 | 0.005 | **0.93** | 0.025 | 0.878 |
| Q75 | 0.059 | -0.023 | 0.013 | 0.07 | 0.048 | -0.055 | **0.763** | -0.023 | 0.597 |
| Q76 | 0.073 | -0.031 | -0.002 | 0.049 | 0.047 | 0.013 | **0.765** | 0.073 | 0.601 |
| Q77 | 0.081 | -0.059 | -0.019 | -0.016 | 0.095 | 0.027 | **0.769** | -0.018 | 0.612 |
| Q78 | 0.076 | -0.054 | 0.015 | -0.005 | 0.078 | 0.059 | **0.76** | 0.061 | 0.6 |

| Item | Factor load factor | | | | | | | | Common degree (common factor variance) |
|---|---|---|---|---|---|---|---|---|---|
| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 | Factor 6 | Factor 7 | Factor 8 | |
| Q79 | 0.05 | -0.001 | -0.025 | 0.029 | 0.048 | 0.021 | **0.759** | 0.045 | 0.585 |
| Q80 | 0.112 | 0.024 | 0.015 | 0.067 | -0.019 | 0.077 | -0.027 | **0.921** | 0.874 |
| Q81 | 0.023 | 0.053 | 0.09 | 0.02 | -0.011 | 0.063 | 0.065 | **0.748** | 0.579 |
| Q82 | 0.149 | 0.018 | 0.032 | 0.106 | 0.004 | 0.056 | 0.085 | **0.728** | 0.575 |
| Q83 | 0.126 | 0.086 | 0.07 | 0.094 | 0.046 | 0.037 | 0.046 | **0.725** | 0.568 |
| Q84 | 0.116 | -0.011 | -0.027 | 0.103 | 0.058 | 0.025 | -0.012 | **0.724** | 0.553 |
| Q85 | 0.066 | 0.057 | 0.03 | 0.139 | 0.037 | 0.116 | 0.007 | **0.717** | 0.556 |

In this study, the data are rotated by the method of maximum variance rotation (varimax) to find out the corresponding relationship between factors and research items. The above table shows the information extraction of research items by factors and the corresponding relationship between factors and research items. From the above table, the common degree values of all research items are higher than 0.4, which means that there is a strong correlation between research items and factors, and factors can effectively extract information. After ensuring that the factor can extract most of the information of the research item, we then analyze the correspondence between the factor and the research item, because the correspondence between the item and the factor is consistent with our theoretical expectation in advance, which means that the questionnaire has good structural validity.

## Correlation Analysis

**Table 6**

*Correlation analysis*

| | Average value | Standard deviation | Music learning effect |
|---|---|---|---|
| Music learning attitude | 2.76 | 0.78 | .172** |
| Self-efficacy | 2.82 | 0.82 | .172** |
| Interpersonal communication skills | 2.89 | 0.77 | -0.049 |
| Perception | 3.29 | 0.84 | .177** |
| AI technology | 2.81 | 0.86 | .162** |
| Culture | 2.86 | 0.92 | .136** |
| Music learning environment | 2.86 | 0.91 | .199** |

As can be seen from the above table, correlation analysis is used to study the correlation between music learning attitude, self-efficacy, interpersonal communication ability, perception ability, AI technology, the combination of culture and music education, music learning environment and music learning effect, and Pearson correlation coefficient is used to express the strength of the correlation. Specific analysis shows that:

The correlation coefficient between music learning attitude and music learning effect is 0. 172, and it is significant at the level of 0.01, which shows that there is a significant positive correlation between music learning attitude and music learning effect.

The correlation coefficient between self-efficacy and music learning effect is 0. 172, showing a significance of 0.01 level, which shows that there is a significant positive correlation between self-efficacy and music learning effect.

The correlation coefficient between interpersonal communication ability and music learning effect is -0.049 and P>0.05, which shows that there is no significant correlation between interpersonal communication ability and music learning effect.

The correlation coefficient between perceptual ability and music learning effect is 0.177, which shows the significance of 0.01 level, thus indicating that there is a significant positive correlation between perceptual ability and music learning effect.

The correlation coefficient value between AI technology and music learning effect is 0.162, showing a significance of 0.01 level, which shows that there is a significant positive correlation between AI technology and music learning effect.

The correlation coefficient between the combination of culture and music education and the effect of music learning is 0.136, showing the significance of 0.01 level, which shows that there is a significant positive correlation between the combination of culture and music education and the effect of music learning.

The correlation coefficient value between music learning environment and music learning effect is 0. 199, showing a significance of 0.01 level, which shows that there is a significant positive correlation between music learning environment and music learning effect.

Correlation analysis shows that some variables have limited influence, and further regression analysis can be carried out.

**Regression Analysis**

**Table 7**

*Regression analysis results (n=527)*

| | Unstandardized coefficients | | Standardization coefficient | *t* | *p* | Collinearity diagonostics | |
|---|---|---|---|---|---|---|---|
| | *B* | Std. Error | *Beta* | | | VIF | TOL |
| Constant | 1.017 | 0.217 | - | 4.688 | 0 | - | - |
| Music learning attitude | 0.086 | 0.041 | 0.091 | 2.121 | 0.034 | 1.083 | 0.924 |
| Self-efficacy | 0.128 | 0.043 | 0.126 | 3.005 | 0.003 | 1.037 | 0.964 |
| Perception | 0.104 | 0.039 | 0.115 | 2.707 | 0.007 | 1.062 | 0.941 |
| AI technology | 0.085 | 0.036 | 0.1 | 2.366 | 0.018 | 1.054 | 0.949 |
| Culture | 0.086 | 0.036 | 0.1 | 2.389 | 0.017 | 1.028 | 0.972 |
| Music learning environment | 0.124 | 0.039 | 0.137 | 3.204 | 0.001 | 1.073 | 0.932 |
| $R^2$ | 0.115 | | | | | | |
| Adjusted R Square | 0.105 | | | | | | |
| *F* | $F(6,520) = 11.246$, $p<0.001$ | | | | | | |
| D-W value | 1.95 | | | | | | |

Dependent variable: music learning effect

* $p<0.05$ ** $p<0.01$

As can be seen from the above table, music learning attitude, self-efficacy, perception, AI technology, combination of culture and music education, and music learning environment are taken as independent variables, while music learning effect is taken as dependent variable for linear regression analysis. As can be seen from the above table, The formula of the model is: music learning effect =1.017+0.086* music learning attitude +0.128* self-efficacy +0.104* perception ability +0.085*AI

technology +0.086* combination of culture and music education +0.124* music learning environment, and the model R-square value is 0.115, which means music learning attitude, self-efficacy, perception, AI technology, the combination of culture and music education, and music learning environment can explain the 11.5% change of music learning effect.

The model passed the F test (F=11.246, p<0.05), which means that at least one of music learning attitude, self-efficacy, perception, AI technology, the combination of culture and music education, and music learning environment will have an impact on the music learning effect. In addition, the multiple collinearity test of the model shows that all the VIF values in the model are less than 5, which means that there is no collinearity problem. And the D-W value is near the number 2, which shows that the model has no autocorrelation and there is no correlation between sample data, so the model is good. The final concrete analysis shows that:

The regression coefficient of music learning attitude is 0.086(t=2.121, p=0.034<0.05), which means that music learning attitude will have a significant positive impact on music learning effect.

The regression coefficient of self-efficacy is 0.128(t=3.005, p=0.003<0.05), which means that self-efficacy will have a significant positive impact on music learning effect.

The regression coefficient of perceptual ability is 0.104(t=2.707, p=0.007<0.05), which means that perceptual ability will have a significant positive influence on music learning effect.

The regression coefficient of AI technology is 0.085(t=2.389, p=0.017<0.05), which means that AI technology will have a significant positive impact on music learning effect.

The regression coefficient of the combination of culture and music education is 0.086(t=2.389, p=0.017<0.05), which means that the combination of culture and music education will have a significant positive impact on the music learning effect.

The regression coefficient of music learning environment is 0.124(t=3.204, p=0.001<0.05), which means that music learning environment will have a significant positive influence on music learning effect.

Summing up and analyzing, we can know that music learning attitude, self-efficacy, perception, AI technology, the combination of culture and music education, and music learning environment will all have an impact on music learning effect.

**Table 8**

*Overview of verification results*

| Hypothesis | Whether to adopt |
|---|---|
| 1. Music learning attitude has a positive and significant influence on music learning effect. | pass |
| 2. Self-efficacy has a positive and significant effect on music learning. | pass |
| 3. Interpersonal communication ability has a positive and significant effect on music learning. | reject |
| 4. Perceptual ability has a positive and significant effect on music learning. | pass |
| 5. AI technology has a positive and significant effect on music learning. | pass |
| 6. The combination of culture and music education has a positive and significant effect on music learning. | pass |
| 7. Music learning environment has a positive and significant influence on music learning effect. | pass |

## Conclusion

Our research is a preliminary attempt to clarify the factors that affect the music learning of non-music majors through quantitative research. Through literature review, we know that there are some factors that will affect music learning, but the previous research mainly focused on the field of professional music education (Jin et al., 2019; Chen, 2020; Civit et al., 2022), this study further clarified the influence of these factors on non-music majors. Our research results can promote the music learning of non-music majors, help relevant decision makers and music teachers make plans and strategies, and promote the development of music education.

Regarding RQ1, table6 and Table7, it shows that the factors that affect the music learning of non-music students are: (1) learning attitude, (2) self-efficacy, (3) perception ability, (4) AI technology in music education, (5) culture in music education and (6) learning environment. It is worth noting that interpersonal communication ability has been proved to have nothing to do with music learning of non-music students.

This study highlights the importance of further promoting effective music learning for non-music majors. However, the study also found some challenges. Based on these findings, we suggest:

1. Hold substantial music and cultural activities, thus having a positive impact on the self-efficacy of non-music students.

2. Broaden the teaching channels to enhance students' attitude towards music learning, thus enhancing the effectiveness of music learning.

3. Take different teaching strategies according to different situations of students to enhance students' participation.

4. It is helpful for students to share their own music learning and understanding by integrating the familiar culture into music teaching.

5. Adopt the mixed teaching method of face-to-face and online teaching to enhance the experience of non-music students.

6. Use AI technology to enrich classroom teaching resources, improve the technical means of music education, and realize differentiated teaching.

Due to the limitation of samples, there may be some situations that have not been considered. Based on this, it is suggested that music educators should fully consider the advantages and limitations of different students in learning music according to different situations, and design music courses with a balance between theory and practice to effectively improve the efficiency of music learning for non-music students.

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# ENRICHING DECISION-MAKING TOOL IN MANAGEMENT: VIA DEVELOPMENT OF GENERAL FRAMEWORK FOR DATA ENVELOPMENT ANALYSIS (DEA)

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## EXTENDED ABSTRACT

## ABSTRACT

Data Envelopment Analysis (DEA) is a commonly used approach to mathematical programming to determine the relative efficacy of Decision-Making Units (DMUs) in organizations. It was introduced decades ago and has become very popular with thousands of publications. This does happen because of its flexible method of comparing the efficiency performance of the DMUs. However, there is no well-known defined general framework for its working. The primary concern is that without a clear framework, some researchers may omit important stages that help obtain a good

result. The danger manifested in literature review papers published on the efficiency evaluation of bus transport companies, where a choice of variables and DMUs were left at individual discretion. This paper introduces a general framework for researchers to use when evaluating the efficiency of DMUs. The generalized framework adds value to DEA techniques by attracting more users due to its explicit directional chart. The framework also intends to reduce the indiscriminate selection of DMUs and variables as seen in the literature. Finally, the research adds value to the DEA application by identifying the appropriate variables to be used, which will yield correct results.

Keywords: Framework, Data envelopment analysis, Enriching, Decision-Making, Management, Efficiency, Data.

## Introduction

Data Envelopment Analysis (DEA) is a non-parametric technique that uses linear programming to assess the relative effectiveness of a collection of peer units called decision-making units (DMUs) (W. D. Cook and Seiford 2009). The DMUs produce their products as services (outputs) using resources (inputs). Deng and Yan,(2019) urged that DEA does not assume a functional form relating inputs to outputs but establishes a linear manufacturing frontier to track input conversion to production. DEA has been commonly used to assess the work of organizations in the same industry for instance, schools, factories, banks, utilities, etc. Charnes, Cooper, and Rhodes (1978) proposed a method of obtaining the efficiency of decision-making units using the analysis (DEA), which is based on the concept brought by (Farrell .M. 1957). Farrell M. uses mathematical programming techniques to compare the inputs and outputs of a set of homogeneous DMUs and assess their relative efficiency. Since,

the presentation of the seminal work on DEA in the literature, for calculating and assessing the efficiency of various types of organizations in management science. Great diversities of DEA applications can be seen in almost every sector, such as banking, agriculture, benchmarking, education, economy, government, health, insurance, information technology, marketing, operations, public policy, human resources, manufacturing, retail, regulation, services, etc. (Agarwal, Yadav, and Singh, 2011; Banker, Charnes, and Cooper,1984; Charnes, Cooper, and Rhodes, 1978). DEA's success lies in the simplicity of its approach, which readily integrates the presence of multiple inputs and multiple outputs without any underlying functional structure assumption.

One of the greatest limitations of DEA was in its assessment to evaluate the effectiveness of a DMU as a whole, without considering its internal structure. Alternatively, the system is viewed as a black box, into which inputs are fed to generate outputs. Nisha Bori, Damghani, and Hafezalkotob (2019), urge that such an evaluation makes it unrealistic. Researchers have begun to look into the underlying structures of peer DMUs in their DEA study some years back. It gives rise to a new DEA method known as network DEA (Wade D. Cook, Tone, and Zhu 2014). The DMUs can be categorized as either a two-stage production process or as complicated as a network with many nodes and arcs attached to its internal structures (C. Kao 2016). The first stage of a DMU uses inputs to generate outputs, and all of the outputs become inputs to the second stage in a basic two-step production process (Chen and Zhu, 2019). The fact that DEA was a widely used tool in many sectors up to date, however to the best of our knowledge from the literature review less attention was

given to such a general framework that takes care of some basic specific criteria which are paramount in its application.

For guidance, the paper is planned as follows: section 2 Hights the objectives and contributions of the paper. section 3. Explained the developed general framework. section 4 was the conclusion.

**Objectives and Contributions**

The current method mainly used in the conventional DEA models, had some shortcomings in evaluating the efficiency of DMUs due to lack of adequate framework, especially for new users. The research framework developed works as a 'blueprint' or guide for research as stated by (Grant and Osanloo, 2014).

Generally, we can say that our framework takes care of two DEA guiding principles: conditions/criteria to be considered and procedure to follow in its application. Without such a framework, there is a tendency for some researchers to ignore some crucial stages that might add value to DEA. Some researchers thought that research without a theoretical or conceptual framework makes it challenging for readers to determine the informative point and the principal factors of the researcher's claims or hypotheses. Adom, Hussein, and Agyem (2018), argue that the framework's overall aim is to make research findings more meaningful, acceptable to the theoretical constructs in the research field, and ensure generalizability. One other contribution of this framework is that it simplifies the approach to follow in the DEA application when data is either crisp or fuzzy. This will serve as an energy booster on the DEA application to non-experts on the field. With the simplification of the DEA procedure, we expect more application users.

**Preliminaries**

A review of some basic concepts of fuzzy numbers in Data envelopment analysis application as seen in (Ebrahimnejad, Tavana, and Charles 2022; Mahdavi-amiri and Nasseri 2007; Maleki HR, Tata M 2000; Puri and Yadav 2013).

The efficiency of the kth DMU using fuzzy CCR input model can be obtained by using

$$\bar{\bar{\emptyset}}_j^k = \min \emptyset$$

$$Subj\ to\ \bar{\bar{\emptyset}}\bar{\bar{x}}_{ik} = \sum_{j=1}^{n} \bar{\bar{x}}_{ij}\pi_{jk} + \bar{\bar{s}}_{ik}^{-+}\ \forall i\ ,$$

$\bar{\bar{y}}_{rk} = \sum_{j=1}^{n} \bar{\bar{y}}_{rj}\pi_{jk} - \bar{\bar{s}}_{rk}^{-+}\ \forall k,$ Where $\pi_{jk}, \bar{\bar{s}}_{ik}^{-+}, \bar{\bar{s}}_{rk}^{-+} \geq 0 \quad \forall\ i,r,j\ and\ k = 1,2,\ldots.,n.$

The fuzzy slack variable , $\bar{\bar{s}}_{rk}^{-+}$ is the rth fuzzy output of the kth DMU; while that of $\bar{\bar{s}}_{ik}^{-+}$ is the ith fuzzy input of the kth DMU.

**Description 3.1.** The distinctive function μÅ of a crisp set A assigns a value of either one or zero to each individual in the universal set X. This function can be comprehensive to a function μÅ such that the values allocated to the element of the universal set X fall within a specified range, i.e., μÅ: X ϵ [0, 1]. The assigned value specifies the membership grade of the element in the set Å. Larger values signify higher degrees of membership. The function μÅ is called a membership function, and the set Å = {(X; μÅ(x))/x ϵ X} defined by μÅ for each x ϵ X is called a fuzzy set.

**Description 3.2**. A fuzzy set Å, defined on a universal set of real numbers ®, is said to be a fuzzy number if its membership function has the following features:

- Å is convex, i.e. for all values of x; y ϵ ®; Given that λ ϵ [0, 1]; μÅ (λx + (1- λ) y ≥ min {μÅ(x), μÅ(y)}
- Å is normal ∃ ȳ ϵ ® μÅ(ȳ) = 1

- for $\mu_{Å}(\bar{y})$ is piecewise continuous.

**Description 3.3:** The arithmetic operations on $š = c_1, c_2, \propto_1, \propto_2$ and $ŭ = d_1, d_2, \beta_1, \beta_2$ are defined as follows:

$$š + ŭ = c_1 + d_1, c_2 + d_2, \propto_1 + \beta_1, \propto_2 + \beta_2$$

$p * š = pc_1, pc_2, p \propto_1, p \propto_2$ , given that p ≥ 0 and $p * š = pc_1, pc_2, -p \propto_1, -p \propto_2$, for p < 0 Ranking: One of the most used Linear ranking functions for a trapezoidal fuzzy number Æ, is the one introduced by (Yager 1981). Assume a fuzzy function, $š = c_1, c_2, \propto_1, \propto_2$, then its fuzzy numbers can be ordered, as follows:

$$Æ(Å) = \frac{1}{2}\left\{c_1 + c_2 + \frac{\alpha_1 + \alpha_2}{2}\right\}$$

According to (Ebrahimnejad, Tavana, and Charles 2022), the above equation can also be used to choose the entering and existing variables in fuzzy primal simplex and fuzzy dual simplex algorithms, respectively.

**The framework**

The framework was designed using a flowchart in an easily sequential form that will aid even non-expertise in the field. Since DEA usually deals with large and complicated data sets, a standard process could facilitate performance assessment and help to (a) translate the aim of the performance measurement to a series of small tasks, (b) select homogeneous DMUs and suggest an appropriate input/ output selection methods, (c) detect a suitable model, (d) provide means for evaluating the effectiveness of the results, and (e) suggest a proper solution to improve the efficiency and productivity of entities (also called Decision-Making Units, DMUs), which is in line with Emrouznejad and De Witte, (2010).

We suggest a framework that involves eight interrelated phases: (A) identification of homogeneous DMUs, (B) identification of input/output variables, (C)

Collection of Data, (D) Conversion of fuzzy data to crisp, (E) Verification for the variables to be the best, (F) Selection of the best input/output variables, (G) Apply appropriate DEA Technique to solve, (preferable DEA Network Analysis) and (H) Results and Interpretation. Figure I is the flowchart of the various stages involved in the framework. Stages one to three are more about understanding nature and how the decision-making units operate. Stages four, five, six, and seven are all about evaluation, while the last stage is about output or results and interpretation which others termed as decision-making stage. It's a known fact that decisions are always taken based on the outcome of the results.

**Figure I**

*Framework for Evaluating Efficiency of DMUs in DEA*

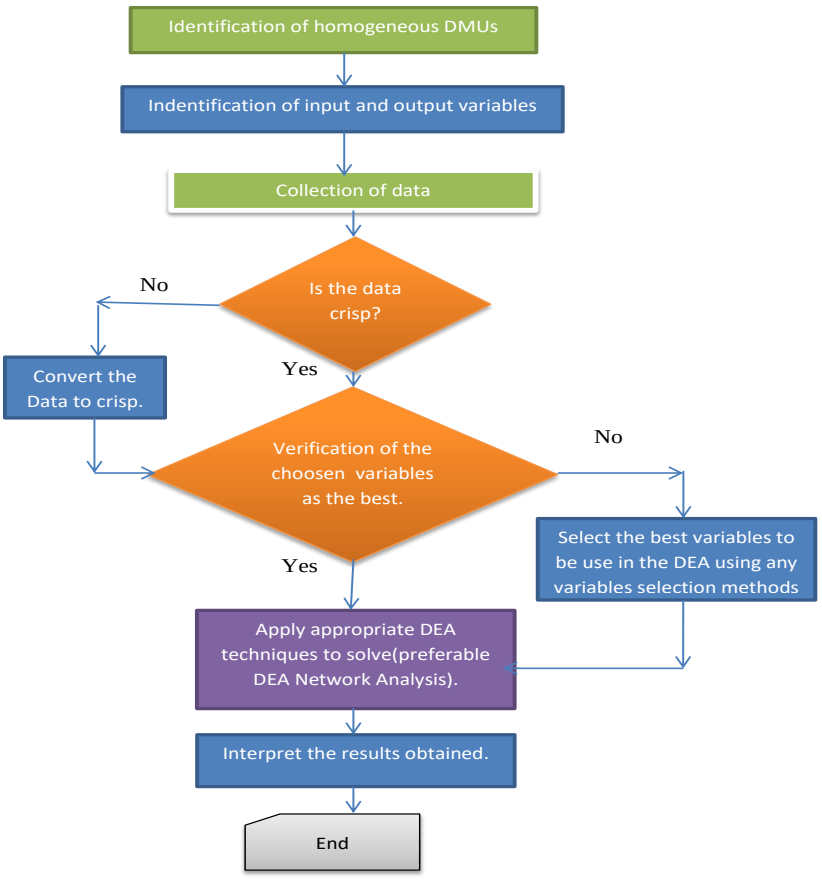


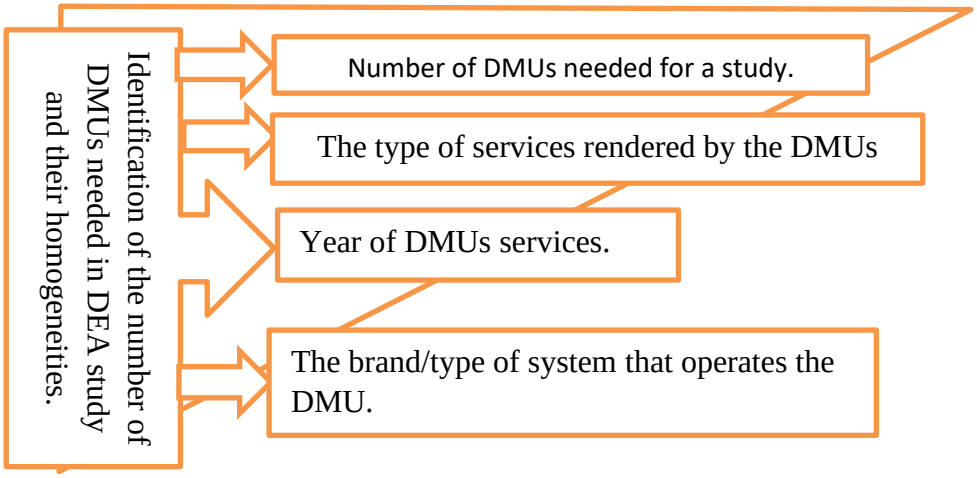

**Figure I**: Framework for Evaluating Efficiency of DMUs in DEA

DEA flowchart has shown how the various stages are systematically connected, starting with the identification of homogeneous DMUs up to results and finally the interpretation of the results. The various stages can be elaborated as follows:

- **Identification of the number of DMUs needed in the DEA study and their homogeneities.**

**Figure II**

*Showing basic structure for Identification of the number of DMUs needed and their Homogeneity in the DEA study.*




**A1. Identification of the number of DMUs needed in the DEA study.**

The first challenge a researcher will face in data envelopment analysis application is identifying and determining the number of DMUs to be included in the research. Most of the studies proposition the rule of thumb where the number of units should be at least twice that of input and output. For example, Golany and Yaakov (1989) suggest that for the number of DMUs, the number of inputs and the number of outputs should be more than 2(m+s) where 'n' is the number of DMUs, 'm' is the number of inputs, and 's' is the number of outputs.

WW, L.M., and K. (2007) have urged that the number of DMUs should be higher than the limit of 3(m+s) and 'm x s'. Pedraja-Chaparro, Salinas-Jimenez, and Smith (1999) also commented that when the value of n/(m+s) is too high, DEA loses its power of discrimination in terms of the number of DMUs.

**A2. Basic things needed under Identification of DMUs Homogeneities.**

Identification of DMUs' homogeneity under study lies in the researcher's ability to understand the characteristics of each DMU. For simplicity, it could be easily understood by answering to the following issues regarding the DMUs under study: The type of services rendered by the DMUs, the service year of the DMUs, and lastly the brand/category of the system that operates as the DMUs. This systematic procedure works similarly to problem-solving techniques in Operations Research where issues are considered from stage one to the end.

Problem-solving techniques vary procedurally; experts agree that the first step in solving a problem is identifying/recognizing and defining the problem. That means one should be able to give a proper definition of DMU homogeneity and its implication to the DEA study. Without a clear articulation/Identification of DMUs under the study, it is impossible to analyze all the key factors and actors that generate possible solutions, and then evaluate them to pick the best option. It is also important to understand the relationship between DMUs and DEA. This made this stage paramount in data envelopment analysis

**A2.1 The type of services rendered by the DMUs**

One other way to have a clear understanding of DMUs homogeneity is through the various services rendered by such DMUs. It is expected that all the DMUs to be chosen must render the same services before comparing their efficiencies. Some common

DMU services are production companies, education, health, transportation sectors, etc. These sectors were also subdivided. For example, the transportation company, the researcher should be able to specify which one among the three, Air, Land, or Sea transport? They are all means of transportation but they are not homogeneous in their operations. These made their services not to be the same.

**A2.2 Services year of the DMUs**

Decision-making units are categorized based on their years in service or establishment. It is a well-known fact that all items that render services face a rate of deterioration. It's not an understatement to link homogeneity with service year or age. In most write-ups regarding mortality rate, age is one of the major demographic information considered in the study ( see: Hannah, Ritchie, and Roser, 2020)

The question to consider is how long has the particular DMU been in service? For instance, in transportation companies, we consider their ages. The same principles are applied to service facilities like Universities. One of the reasons is that age affects efficiency. When their ages are almost the same, it justifies their homogeneity.

We recommend a certain interval range of ages to be considered the same. However, the interval range should depend on the rate of deterioration of DMUs under consideration. We also wish to point out that this stage gives answers to some of the possible reasons for discrepancies in the efficiency value of the DMUs when not checked.

**A2.3 The brand/category of the system that operates the DMUs**

The researcher has to identify the brand or types of the items/structure used in the DMUs services. Some of the DMUs we consider must have been manufactured by different companies of various standards, especially transport companies. That means

their durability differs. At this stage, it's very vital to know the manufacture of each product used. For example, cars are of different brands like Toyota, Honda, Mercedes, Ford, BMW, etc.

In the educational sector also, we have primary, post-primary, and tertiary education within the sector itself. Thus, it is good to specify since their durability and mode of operations are not the same., which makes them non-homogeneous. One can also understand the concept of homogeneity from its definition, which states that a homogeneous product cannot be distinguished from competing products from different suppliers. One product can easily be substituted for the other. It means that all product versions serve the same purpose, and you aren't likely to care about which one to use.

**B. Identification of input/output variables**

In DEA, many activities can be expressed as a translation of inputs to outputs. To even differentiate between the variables is one of the challenges faced by some researchers. The variable identification becomes more complex when applying Network DEA with multiple stages, where the output variable at a certain stage becomes input at the next stage. The efficiency values obtained in the DEA application are always a by-product of values obtained from input and output variables which are called data. This means that when incorrect data (input and output variables values) are used in DEA analysis, the consequence is that the efficiency values will be wrong and misleading. For more output transformation to input in Network DEA (See: Despotis and Koronakos, 2014; Chen and Zhu, 2019; Alnafrah, 2021).

G N and Smiti Pande (2012) suggested that input and output variables are identified based on the objectives of the DMUs and also the literature reviewed.

However, (Eskelinen 2017) believed that there is still no proper method of identifying relevant input and output variables in DEA. They termed it as one of the drawbacks of the DEA study. Subramanyam T. (2016) believes that the number of input and output variables used in DEA applications vary from one researcher to another, consequently, DMU's efficiency will also shift from one researcher to another, since there is no general agreement on DMU's effectiveness.

**C. Data Collection**

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. Sapsford R. and Jupp (2006) define data collection as the method of carefully collecting the relevant details, with the least distortion possible, so that the study can provide accurate and rational answers. To begin the preparation of data collection one has to analyze what degree of data is going to be used.

The results of the research depend on the data collected. The methods of data collection can be divided into two categories: secondary data collection methods, and primary data collection methods. Finally, we suggest that researchers use the most appropriate method of data collection techniques for the DEA study.

**D. Convert Fuzzy Data to Crisp.**

The conventional DEA models CCR (Cooper-Charnes-Rhodes) established by (Charnes, Cooper, and Rhodes, 1978) and BCC (Banker-Charnes-Cooper) developed by Banker, Charnes, and Cooper (1984b) have great potential for application in problem areas, where inputs and outputs are defined and deterministic. However, the practical values

in real-world problems may also be inaccurate or ambiguous. In such a case, fuzzy data needs to be converted to crisp.

The concept of fuzzy sets (referring to the sets with inaccurate and ambiguous nature) was first introduced by Zadeh in 1965. Jati K. Sengupta (1992) suggested the tolerance approach. However, the most widely used in literature is the one proposed by (Chiang Kao, Liu, and Kao, C., and Liu 2000). They developed an algorithm for calculating the efficiencies of DMUs with fuzzy data where the α-cut approach transforms fuzzy observations into crisp variables. Saneifard and Asghary (2011) used the probability density function to fuzzify the fuzzy quantity into a crisp quantity. For more detail on recent work on uncertain data in DEA see (Satheeshkumar and Nandhini, 2017; Das, 2017; Ehrgott, Holder, and Nohadani, 2018; Edalatpanah, 2019 and Jayapriya and Porchelvi 2021), etc.

**E. Verification/Validation of Chosen Input/output Variables.**

Data validation ensures the data is clean, correct, and useful. (Simon and Goes 2013) urges that "Data validation could be operationally defined as a process which ensures the correspondence of the final (published) data with many quality characteristics". The decision-making process is generally based on rules that convey appropriate value combinations. When data complies with the rules, which ensures that the combination represented by the rules is not broken, data will be deemed legitimate for final use.

A consequence of using unverified data was seen back during some of the U.S. War on Terrors, especially the 2002 Iraq invasion. The U.S. decision-makers have been misled about the existence of Iraq's weapons of mass destruction. After the war, the knowledge was still incorrect, but it had an enduring effect on Iraq, and the global economy (Smith, Honorable, and Cook, 2004). Hence, with a proliferation of data

sources and the overwhelming amount of data reaching every decision-making process, filters out the misleading information and exploits the positive information (Hutchinson, D. and Warren, 2001).

To check if the chosen variables/data have been validated search for expert opinion from the published literature reviews. If there is no record for such data, then proceed to any available variable selections method in DEA at stage 'F'.

**F. Selection of input and output variables.**

DEA results depend highly on the set of input and output variables used in the analysis as supported by Bruce L. Berg (2010). It states that DEA results are sensitive to the selection of inputs and outputs. Despite the importance of variable selection in DEA applications, relatively little attention has been paid to the literature on how these input and output variables can be chosen. Literature has shown indiscriminate use of input and output variables during DEA application by researchers (Tran et al. 2016; Lepchak and Voese 2020). Some researchers used the following as inputs; Labor; Fuel; Fleet size Vehicle/ Vehicle operating cost; Maintenance cost; General cost; Other expenses; Revenue vehicle hours; Population density; % of households with car; Subsidy passenger/ Total vehicles; Total employees; Transit system characteristics: Population; Area. / Total number of bus park; Number of staff; Annual amount of fuel consumed and used; Vehicle-Km; Passengers / Travelled Km only / Revenue vehicle hours; Unlinked passenger- trips, as output variables in measuring the transit performance.

The selection process becomes more intricate especially when applying Network DEA with multiple stages, where output variables at the earlier stage turn to

input in the later stage as can be seen in (Chen and Zhu, 2019; Nishabori, Damghani, and Hafezalkotob 2019; B M Hendrawan, B Purwanggono, 2021; Yu, 2021).

Many of the existing DEA articles published treat the input and output variables used in their studies simply as "givens" and then address the DEA methodology. Boussofiane, Dyson, and Thanassoulis (1991) believed that in the DEA model, the total number of input and output variables should not be more than one-third of the number of DMUs in the study. However, Khezrimotlagh et al. (2019) urged that applying the rule of thumb in the number of variables to be used may not necessarily give one the optimal efficiency value. They state that their model increases the discrimination power of DEA, it also allows for increasing the numbers of inputs and outputs even if the number of DMUs is relatively small. They were also of the view that even though restricting the number of variables is desirable, there is no consensus about how best to do that.

The variable selection process can be found in (Toloo and Babaee, 2015; Sharma and Yu, 2015; Subramanyam T. 2016) where they used Stepwise and regression in data envelopment analysis for variable reduction. Peyrache, Rose, and Sicilia (2020) also proposed variable selection in Data Envelopment Analysis. Lee and Cai (2020) worked on LASSO variable selection in data envelopment analysis with small datasets. (Arsad et al. 2017) Selection Input-Output by Restriction Using DEA: Delphi approach.

**G. Apply Appropriate DEA Technique to analyze the data.**

Data analysis refers to the execution of procedures through which data is checked to arrive at an educated conclusion. Marshall and Rossman (1999) define data analysis as a process to add order, structure, and meaning to the collected mass of data. Data

analysis is as important to a researcher as it is important for a doctor to diagnose the problem of the patient before giving him any treatment.

Analysis of the data tends to be extremely subjective. In other words, the nature and purpose of interpretation will vary from business to business, which is likely to correlate with the type of data being analyzed. This makes choosing the correct technique or software that can assist the researcher to obtain a good result in DEA analysis very important and challenging. However, many proposed techniques can aid any researcher in analyzing both fuzzy and crisp data in the literature. For non-network DEA application detail consults; (Charnes, Cooper, and Rhodes, 1978; Banker, Charnes, and Cooper, 1984; Kao and Liu, 2000; Satheeshkumar and Nandhini, 2017; Foroughi and Shureshjani, 2017; Ebrahimnejad, Tavana, and Charles 2022), etc. For the case of Network DEA application method (See: Chen and Zhu, 2019; Cheng-Kai Hu, Fung-Bao Liu, Hong-Ming Chen 2021; B M Hendrawan, B Purwanggono, 2021; Yu, 2021 ; Alnafrah 2021; Hosseini-Nasab and Ettehadi, 2022 and Li et al. 2022).

There are also available software that can be of great help, some are free. They are dea_data.XML, STATA, MATLAB, Python, R-package, DEA-Solver, PIM-DEA, SFA, etc.

**H. Interpretation of Result**

Interpretation refers to the task of drawing inferences from the collected facts after an analytical or experimental analysis. Reporting data means more than just showing it. You often have to interpret or evaluate the data, that is, say what it means, especially concerning your research question. The effort to establish continuity in research is by linking the present outcomes of a given study with the previous similar

one. The researcher may well understand the abstract theory that operates under the results through interpretation.

Patton (2002) defines the third and final step of the research process, the interpretation, as involving clarification of the findings, addressing the why questions, adding particular results to context, and bringing trends into an analytical framework. The DEA software such as DEAP and DEA-solver use efficiency scores in their output-oriented models between 0 and 1, and if the DMU score = 1 means it is efficient and on the efficiency bound otherwise its inefficient (Charnes, Cooper, and Rhodes,1978).

## Conclusion

One of the best ways to learn about the Data envelopment analysis application is through the framework. Adom, Hussein, and Agyem (2018) argue that the overall aim of the frameworks is to make research findings more meaningful, acceptable to the theoretical constructs in the research field, and ensure generalizability. Based on the literature review, we have not seen an explicit framework specifically for DEA applications. The paper aims to provide a standardized performance evaluation approach in DEA through the suggested framework. The framework intends to reduce the indiscriminate selection of DMUs and variables applied in DEA as shown in published literature review papers (Yen and Chiou 2019).

The framework proposed consists of eight interrelated stages/phases (a) Identification of homogeneous DMUs and numbers to be used in the study, (b) Identification of input and output variables. We have little divergent views on the number of DMU variables to use in the study from the rule of thumb. We suggest that in a situation where DMU variables to be used have never been validated as the best

as explained in stage "E". Then one has the liberty to consider all the most important variables in DMUs of the study area before validating them. The suggestion concurs with the one made by Khezrimotlagh, Cook, and Zhu (2019) in which they urged that applying the rule of thumb for the number of variables to be used may not necessarily give one the optimal efficiency value. The variables chosen can later be reduced using the selection method stage. (c) Collection of Data is through the normal methodological process of data collection, obtained from variables of the DMUs, (d) Conversion of fuzzy Data to a crisp using any of the defuzzification methods as mentioned at stage "D", (e) Validation of the variables, (f) Selection of input and output variables (g) Analysis of data using the appropriate technique (preferable Network DEA), and (h) Results and interpretation or decision-making stage. At stage "g" it is advisable to make use of Network DEA in the evaluation of efficiencies for the DMUs. The advantage is that Network DEA considers the internal relation between the inputs and outputs variables of the DMUs as against normal DEA that measures technical and scale efficiency only (Tabasi et al. 2019).

The framework was designed in a simple and logical pattern that guides DEA users, especially inexperienced ones. It will also add value to DEA techniques by guiding the users. The greatest fear of not using such a framework is that there is a tendency for some researchers to ignore some very important stages that are vital in the DEA application. The wide range of its application in many places due to its flexibility offers some lines of interest and hope for new developments study, especially in the Network DEA application. However, it is believed that the normal norm of the reproduction will be adhered to.

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# DEVELOPMENT OF DIFFERENTIATED ELECTRONIC LEARNING WORKSHEETS BASED ON EXPERIENCE, INTERACTION, COMMUNICATION AND REFLECTION: INTEGRATING ISLAMIC VALUES INTO THE KINETIC THEORY OF GASES

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## EXTENDED ABSTRACT

This research seeks to identify the quality and islamic attitude scale of Phase F students of senior high schools in using differentiated electronic learning worksheets based on Experience, Interaction, Communication and Reflection. In Indonesian it is called Lembar Kerja Peserta Didik berbasis *Mengalami, Interaksi, Komunikasi dan Refleksi* or e-LKPD berbasis MIKiR. This electronic student worksheet integrates Islamic values into the Kinetic Theory of Gases. The study utilized the Research and Development approach, through the steps of the ADDIE model. Questionnaires and tests were used as research instruments, with a questionnaire technique for a Likert

scale. The collected data were examined through a qualitative descriptive analysis. The findings of this study were eligibility according to media, and material experts. The value of the student's religious attitude scale to the electronic learning worksheets as a result of research development. The developed Electronic Student worksheet is very suitable for use from, language, graphics, content, and presentation. An average validation value of media experts of 86.80%, and material experts at 87.40%. The average scientific literacy post-test score for the Kinesthetic 82.71, Auditory Learning approach group was 79.50, and Visual 79.95. The insignificant differences according to the results of the one-way ANOVA test of 0.415 and a significance value greater thana significance value greater than 0.05. The value of Islamic attitudes with t-test on 0.01 or t-test moreless than 0.05. It's mean the electronic learning worksheets was effective in increasing the Islamic attitude values. The electronic learning worksheets result of this study are very worthy for use in differentiated physics learning.

Keywords: Differentiated; Electronic worksheet; Islamic integrated; MIKiR

## Literature Review

The success of achieving learning objectives has been influenced by the applications of an active learning process, a media used, and Learning approach approach strategies (Dantas & Cunha, 2020). Learning approach is a person's tendency to adapt a specific learning approach through exploration and experimentation. Each student has a different Learning approach, which is the key to success for students in learning and overcoming their learning difficulties (Abdurrahman & Kibtiyah, 2021). Research by Rambe & Yarni, (2019) concluded that, there was a notable impact of auditory, kinesthetic, and visual Learning approachs for

learning achievement. The relative contribution of each to learning achievement, namely: 27.4% visual Learning approach, 23.2% auditory Learning approach, and 27.2% kinesthetic Learning approach. Differences in the Learning approachs of each student allow for differentiated learning, namely learning that pays attention to Learning approachs, learning readiness, and learning preferences, thereby helping to achieve student learning goals (Faiz et al., 2022).

Learning with differentiation views individuals as unique and different, so the teacher's preparation in deciding on the learning strategy to be applied all starts from the identification results of the profiles and needs of students. The teacher only guides students to achieve their best version according to their respective potential or uniqueness (Putri, 2021) Differentiated learning that applies the principle of independent learning has received the attention of the Government of Indonesia with the execution of an Independent Curriculum that accommodates differentiated learning (Sigalingging, 2022).

Differentiated teaching processes, and media that align with students' needs for their Learning approachs to help students achieve learning goals are important (Variacion et al., 2021). Learners must be given different instructions, activities, and learning materials according to their Learning approachs. It will allow auditory, visual, and kinesthetic learners to explore the content of the various assignments and methods offered. Differentiated learning can include materials/media, processes, and outputs/products of differentiated lessons (Malacapay, 2019)

The differentiated learning process can be implemented using the MIKiR active learning approach (Experience, Interaction, Communication, and Reflection) accompanied by interest and innovative teaching materials (Fahmi & Rusilowati,

2020). Through the Smart Mobilization Program at partner schools, Tanoto Foundation introduced MIKiR's active learning. It invites students to experience, interact, communicate, and reflect on their learning process (Kediklatan et al., 2021).

The MIKiR concept is a solution for teachers looking for active learning concepts that can implement 21st-century skills, namely Creative, Critical Thinking, Communicative, and Collaborative, known as the 4 C's (Teo, 2019). Teachers can use various learning media in the active thinking approach, including used simulations (Rusilowati et al., 2022). The MIKIR as an active learning approach can increase the goal of active learning so that students can express their critical and creative ideas (Fahmi & Rusilowati, 2020). This concept changes the paradigm of the teacher's attitude in teaching by acting more as a facilitator for students and centered on students (Budiono, 2021).

Active learning will encourage increased active learning and literacy skills in dealing with problems in everyday life (Turiman et al., 2012). Active learning is needed to achieve meaningful learning (Mulyanti et al., 2021; Winnarko et al., 2020); Research Theobalda et al. (2020) by analyzing student test scores from 15 studies (a total of 9,238 students) and information on student failure rates gathered from 26 studies (a total of 44,606 students). The outcomes of Bayesian regression analysis reveals that the average, active learning reduces the achievement gap in test scores by 33% and narrows the gap in pass rates by 45%. Learning time spent by students doing activities in class is importants. That is because apply active learning with high intensity can narrow the gap in achieving learning objectives. Differentiated learning has been utilized in science education to meet students' educational needs by taking their interests into account, profiles, readiness, and learning methods, according to a

review of research literature. The implementation of differentiated instruction in science learning, especially on physic is limited. From 2012 to 2022, just forty-five articles were obtained. That differentiated learning in science learning (Wahyuni, 2022).

In addition to the differentiated learning process, there is also need to integrate Islamic values into important science to develop knowledge and ethical character (Fahyuni et al., 2020). In Islam, every human being is originating from a holy environment, and education is a determining factor in enhancing a child's religious understanding through impactful education that will enhance the quality of the millennial generation (Rosyidin & Arifin, 2021). The integration of Islam and science in Indonesia was accommodated through the regulation of the Minister of Religious Affair with KMA number 347 of 2022 concerning Implementation of Kurikulum Merdeka in Madrasas. (Farwati et al., 2022). Integrating Islamic ethics is an effort to combine science with Islam without eliminating the uniqueness between the two things.

The development of MIKiR-based differentiated learning media Combined with Islamic principles in the form of electronic learning worksheets (Suryaningsih & Nurlita, 2021) does not just provide information or a brief guide but instill the value of character education which is closely related to the material presented. Electronic learning worksheets can made with various platforms that allow displaying videos, animations, images, materials, student activities, and evaluations for reflection on learning (Asmaryadi et al., 2022). The application for making these electronic students' worksheets uses Flip PDF Professional because it has several advantages: 1) loading images, videos, links, YouTube links, and sound. 2) students do not need to download

the application by simply opening the flip link. 3) it can be accessed anytime and anywhere as long as connected to the internet network (Komikesari et al., 2020; Suprapto et al., 2022; Watin & Kustijono, 2017).

The development of innovative electronic learning worksheets was more important than learning without mediain the process of learning science, especially physics. Electronic learning worksheets can serve as a bridge in meeting the demands of differentiated learning, as teaching materials, practical instructions, and overcoming student freedom in class (Fadhila, 2022). The reason is that Learning physics involves more than delivering information, but also about providing students with practical learning experiences (Liana et al., 2020). The advantages of electronic learning worksheets in learning include being easy to use and practical with a variety of features than ordinary books. Materials, links, learning videos, audio, and as well as a range of question types such as objective questions, short answers, drop & down, and others can be integrated. Another excess is the answers to the questions on electronic learning worksheets done by students will be forwarded to the teacher's account and email. Student scores are then automatically processed by the system. In this case, the teacher gets an excess, so the teacher does not need to manually correct Stud ent answers (Lathifah et al., 2021)An e-student worksheet is a digital file designed to minimize paper usage (paperless), can be accessed employing digital devices including gadgets, computersand, and laptops can be accessed anytime and anywhere (Sinta et al., 2021).

Based on the problem description and the results of the diagnostic assessment of differentiated learning concepts. the electronic learning worksheets are anticipated to address these issues and enhance the effectiveness of imparting Islamic values in

Physics subjects. This study created differentiated electronic learning worksheets grounded in Islamic-integrated MIKiR for the Gas Kinetic Theory material. The goal was to analyze the quality of these worksheets and assess the extent of Islamic attitudes among Phase F SMA/MA students in using them.

## Research Method

This study utilizes the R&D approach, following the ADDIE (analysis, design, development, implementation, and evaluation phases) model (Saadah & Wahyu, 2020; Saputro, 2017; Subakti et al., 2022). The research involved 133 students from Phase F, Class XI at Madrasah Aliyah Negeri (MAN) 1 Semarang Regency for the 2023-2024 Educational year, who selected a science specialization. These students were divided into a control group and an experimental group. A Likert-scale questionnaire was employed to assess the validity of the e-learning worksheets, evaluate student and teacher responses, and gauge the impact on students' Islamic attitudes towards using these worksheets. Data collection was performed using a questionnaire technique (Nurmaya et al., 2022). The Islamic questionnaire data was analyzed through normality tests, homogeneity tests, and T-tests to examine the correlation between the use of e-student worksheets and students' Islamic attitudes (Alfadil, 2020; Yam & Taufik, 2021).

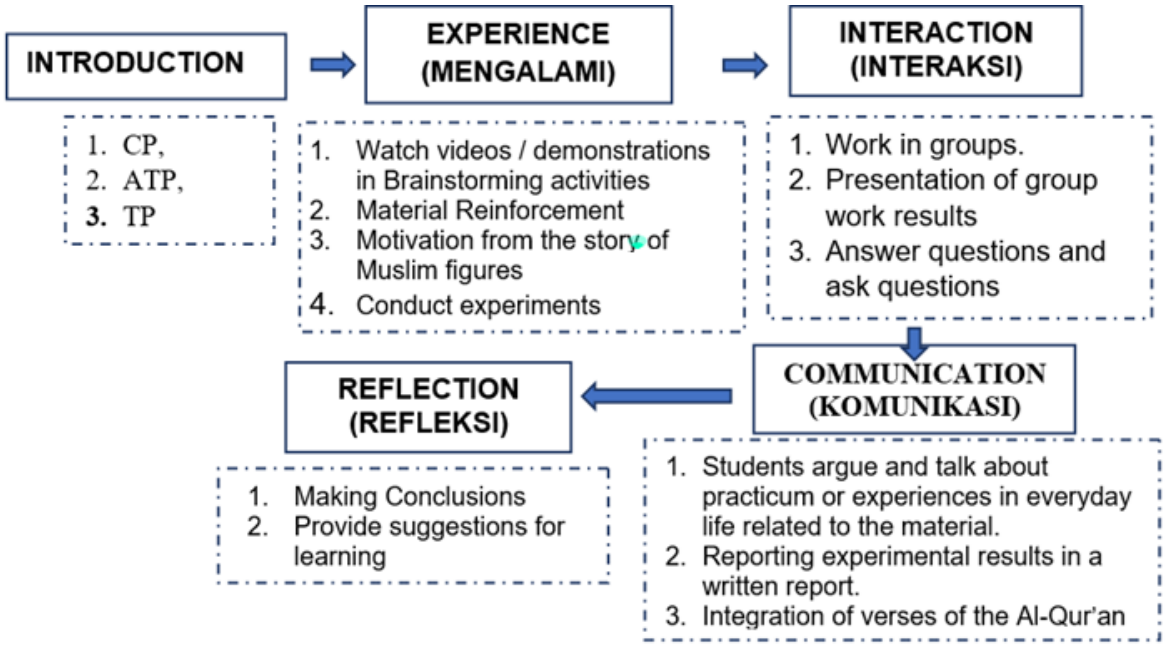
The Analysis stage was done with product development from various aspects that influence the preparation of the electronic learning worksheets. Researchers conducted a needs analysis and analysis of the learning environment. A needs analysis was carried out by analyzing students' Learning approachs with a Learning approach diagnostic assessment (Rahayu et al., 2022; RWAP, 2017). Analysis of the learning

environment to see if there are learning resources for the learning process of Gas Kinetic theory material.

The design stage was done by preparing a MIKiR-based differentiated electronic student worksheet and product development design with the stages of experiencing learning, interaction, communication, and reflection (Budiono, 2021; Putri, 2021; Simalango, 2019). The learning flows of electronic learning worksheets can be shown in Figure 1.

**Figure 1**

*Learning Flow of E-Student Worksheets*




The third stage was developed by developing an electronic student worksheet according to the independent curriculum. An electronic student worksheet contains material, concept maps, video tutorials, learning videos, animations, music, and experiments on the kinetic theory of gases adapted to the needs of students' Learning approachs (Abdurrahman & Kibtiyah, 2021). The electronic student worksheet also contains information on physics, Muslim scientist figures, and the integration of the

holy verses of the Qur'an in instilling and familiarizing Islamic attitudes in learning. The validation findings from subject matter and media experts can be utilized to assess the quality of electronic learning worksheet products.

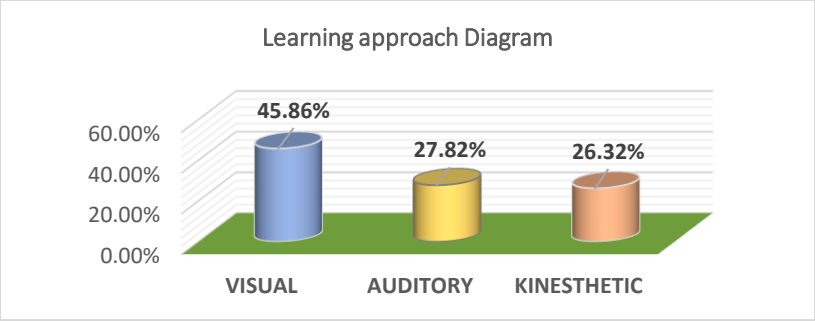
The fourth stage is implementation. This stage has implemented an electronic learning worksheet product according to MIKiR integrated with Islamic values that has been developed (Raden Intan, 2015; Wati et al., 2021). The response results are the basis for product evaluation and improvement (Saadah & Wahyu, 2020; Sugiyono, 2018). The product results have been improved in the control, and experimental classes to establish the level of students' Islamic attitude values and their effectiveness in differentiated learning. The t-test functions to determine the increase in Islamic attitude value. The one-way ANOVA test aimed to identify the effectiveness of differentiated learning.

## Results

1. The Result of Analysis Stage

The result of analysis stage was learning approachs of the research subjects employ auditory, kinesthetic, and visual learning approaches. The percentage of Learning approachs shown in Figure 2.

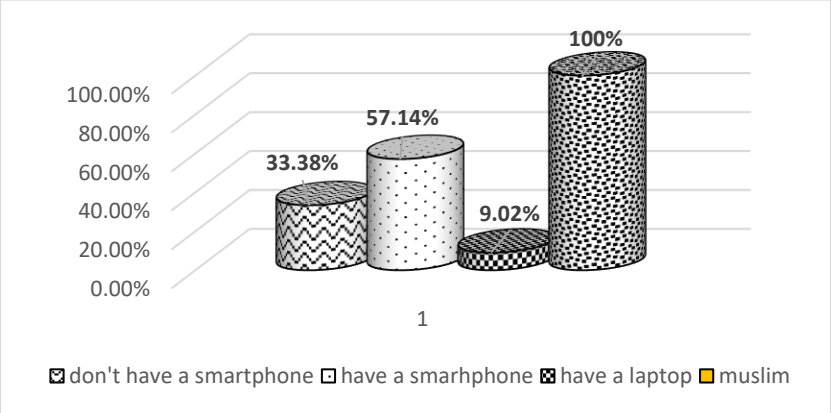
**Figure 2** *Description of the study subjects' Learning approaches*



The analysis of the learning environment reveals that the research subjects are within an Islamic-based educational context, as depicted in Figure 3.

**Figure 3**

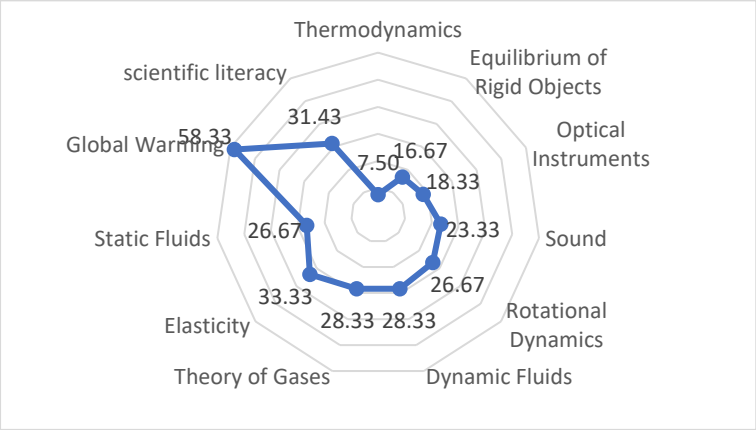
*Learning Environment Analysis*




The diagnostic assessment of physics material mastery serves to determine students' mastery of physics material and science literacy. Researchers conducted a material mastery assessment on 20 respondents, class XII IPA students in the 2022-2023 academic year who had received class XI material in the 2013 curriculum. Respondents were asked to work on 30 multiple-choice questions on the material Kinetic Theory of Gases, Thermodynamics, Equilibrium of Rigid Objects, Optical Instruments, Sound, Rotational Dynamics, Static Fluids, Dynamic Fluids, Elasticity, and Global Warming. The multiple-choice question instrument included seven literacy questions. The outcome of the assessment of physics mastery, and science literacy of 20 respondents are as shown in Figure 4.

**Figure 4**

*Science Literacy Assessment Results*




2. The Result of Design Stage

The result of the design phase is a differentiated e-student worksheet design. Electronic learning worksheets used The MIKiR (Mengalami Interaksi Komunikasi Interaksi) learning approach. Islamic attitudes value as local wisdom was been integrated into e-student worksheets as shown in Table 1.

**Table 1**

*Design Phase Is a Differentiated E- Student Worksheet*

| Activity step | Activity 1<br>Lesson 1 | Lesson 2 | Activity 2<br>Lesson 1 |
|---|---|---|---|
| Introdubction | Submission of Learning Objectives | Submission of Learning Objectives | Submission of Learning Objectives |
| Experiencing | Brainstorming:<br>giving examples of the tire burst phenomenon and giving demonstrations about gay-lussac's | Brainstorming:<br>Gay Lussac's Law by giving a picture of a burning candle on a plate filled with | Brainstorming:<br>Gives an example of localized blackening in a lamp |

| | | | |
|---|---|---|---|
| | law with simple tools | water covered with a glass | |
| | Strengthening: Describe Boyle, Charles, and Gay Lussac's Laws | Strengthening: Describe the material Law of ideal gas and the ideal gas equations. | Strengthening: Describe the material pressure and kinetic energy of an ideal gas. |
| | Experiment: | Discussion | Experiment |
| | Boyle's law<br>Charles Law<br>Gay Lussac's Law uses simple tools that exist in students' daily lives | Discussion of the application of the ideal gas law to the human respiratory system, hot air balloons, and pressure cookers | The relationship between temperature and the kinetic energy of the gas uses the scratch application. |
| | Motivation: | Motivation: | Motivation: |
| | Describes the story of a Muslim scientist figure to take as an example | Describes the story of a Muslim scientist figure to take as an example | Describes the story of a Muslim scientist figure to take as an example |
| Interaction | Work in groups | Work in groups | Work in groups |
| | Presentation | Presentation | Presentation |
| | Presentation procedure | Presentation procedure | Presentation procedure |
| | Question and answer procedure | Question and answer procedure | Question and answer procedure |
| Communication | Opinions talked about practicum or experience in everyday life related to the material. | Opinions talk about the applications of the Ideal Gas Law or experience in daily life related to the matter. | Opinions talked about practicum or experience in everyday life related to the material. |
| | Report experimental results in a written report. | Report experimental results in a written report. | Report experimental results in a written report. |

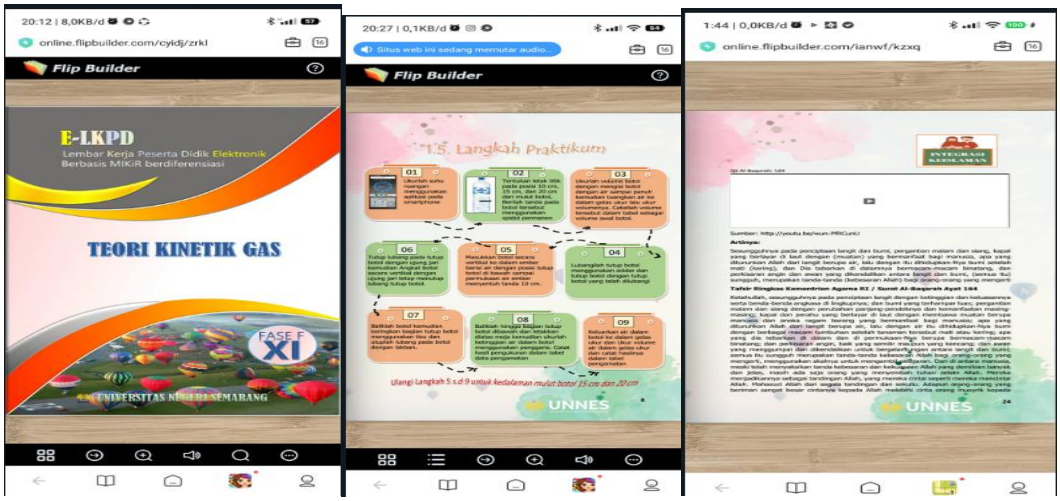
| | | | |
|---|---|---|---|
| | Integrating Ideal Gas Law with verses of the Qur'an QS Yunus: 101 | integrating ideal gas application materials with verses of QS Ali Imran 190-191 | Integrating Ideal Gas Law with verses of the Qur'an QS Ar-Rum: 48 |
| Reflection | Making Conclusions | Making Conclusions | Making Conclusions |
| | Give suggestions on learning | Give suggestions on learning | Give suggestions on learning |

3. The result of Development Stage

The design results at the design stage are developed into e-LKPD using the Flip PDF Professional application. Figure 5 shows the developed electronic student worksheet features.

**Figure 5**

*Electronic Student Worksheet Features.*

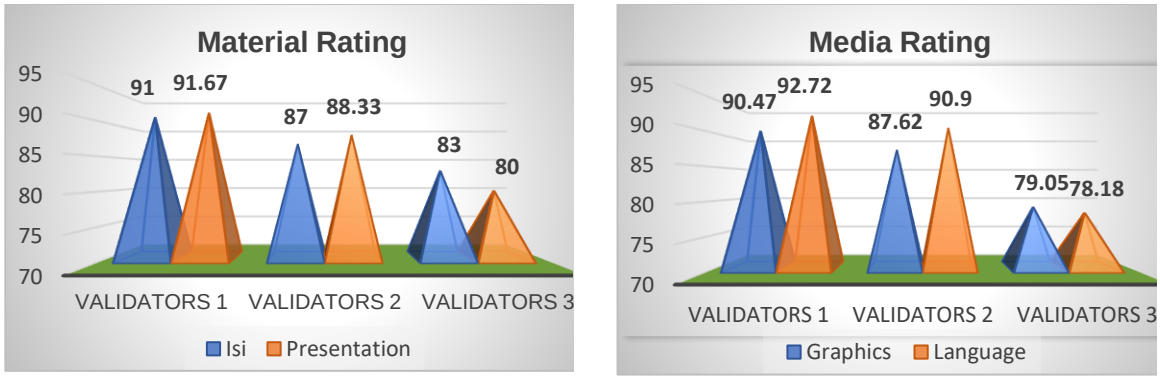



The electronic student worksheet section consists of introductory flips, part 1 flip, and part 2 flip. Each flip part 1 was composed of a visual flip, auditory flip, and kinesthetic flip, as shown on page xvi in the introduction section.

The assessment outcomes from media, and material experts yielded an average media rating of 86.49 and a material assessment score of 86.83. Figure 6 displays the validation outcomes from these experts.

**Figure 6**

*Validation of Media and Material Experts*




4. The result of Implementation stage

*4.1. Results of Increasing Science Literacy of Students in Each Learning approach Group.*

This study has three populations in the experimental group, namely the auditory Learning approach group, the kinesthetic Learning approach group and the visual Learning approach group. In the experimental class, each group was given MIKiR learning with differentiated electronic learning worksheets Based on Mengalami Interaksi Komunikasi Refleksi integrated with Islamic Values. The effect of treatment on Learning approach variants used a one-way ANOVA test as shown Table 2.

**Table 2**

*ANOVA Test and Average Value of Science Literacy Learning Approach Group*

| | Minimum Value | Maximum value | Average value | Sig annova |
|---|---|---|---|---|
| **Auditory** | 64,00 | 96,00 | 79,24 | 0,387 |
| **Kinesthetic** | 64,00 | 88,00 | 76,47 | |
| **Visual** | 76,28 | 84,06 | 80,17 | |

4.2. Results of the Effectiveness of E-LKPD on Islamic Attitude Values

The SPSS results for the normality and homogeneity tests of the Islamic attitude values from 133 students in class of control, and experiment showed a significance value greater than 0.05. This indicates, the Islamic attitude were homogeneous, and normally distributed. 'Normal' refers to the data being evenly distributed, forming a bell-shaped curve, while 'homogeneous' means there are no significant differences in the averages or variances of the Islamic attitude values between the two groups. Islamic Attitude Values t-test Findings on the SPSS output can be shown in Table 3.

**Table 3**

*Islamic Attitude Values t-Test Findings*

| Class | Df | Sig. (2 tailed) |
|---|---|---|
| **Experiment on control** | 133 | 0,01 |

## Discussions

1. Differentiation Analysis on Electronic learning worksheets

Based on the needs analysis results, it's shown that the Learning approachs of the research samples are different. The highest percentage of Learning approachs is

visual, 45.86%, followed by auditory, 27.82%, and the lowest is 26.32%. Each Learning approach has different characteristics (Abdurrahman & Kibtiyah, 2021; Nurmaya et al., 2023). Auditory, Visual, and kinesthetic learners have characteristic shown Table 4.

**Table 4**

*Characteristics of Auditory, Visual, and Kinesthetic Learning approaches*

| **Visual** | **Auditory** | **Kinesthetic** |
|---|---|---|
| a. Speak more fast<br>b. Concerned about appearance<br>c. Not easily distracted<br>d. what is heard is better remembered<br>e. Readers are fast, persistent, and imagine what its read<br>f. Not good at choosing words<br>g. Prefer demonstrations over speeches<br>h. if they have trouble remembering verbal instructions unless they are written down and often asks others to repeat them. | a. When they working likes to talk to yourself<br>b. Neat appearance<br>c. Easily distracted by noise<br>d. remember more of what is heard.<br>e. Loves to read aloud and listen<br>f. Reading with say the words<br>g. Fluent speaker<br>h. Has trouble with work | a. Speak slowly<br>b. concentration is not easily disturbed<br>c. Learn through practice<br>d. Memorize by looking and walking<br>e. difficults to write but is greats at telling stories<br>f. Likes books, and they reflect action with body movements while reading |

| | | |
|---|---|---|
| | that involves visuals<br>i. Speak in a patterned rhythm | g. They ikes to touch objects and likes busy games<br>h. Listen to every six words we say<br>i. Stand close to others, move around a lot |

Source: (Rusilowati et al., 2022)

The characteristics of Visual, Auditory, and Kinesthetic Learning approachs are different. Differences in Learning approachs make each student have dominant learning channels. Before carrying out learning, a teacher first understands the learning channel of each Learning approach. Understanding learning channels can create learning strategies that will apply (Kurniawan & Hartono, 2020). In learning, it is not possible to determine which particular learning method is the most dominant to apply. Better Learn uses all means to facilitate all learning channels. The more learning channels, the easier it is to remember the lessons (RWAP, 2017). Differentiated electronic learning worksheets in this study using an analysis of learning strategies for each Learning approach. The analysis results of Learning approach are shown in Table 5.

**Table 5**

*Differentiated Learning Strategies*

| Visual Learning Strategies | Auditory Learning Strategies | KinestheticLearning Strategies |
|---|---|---|
| a. The teacher uses visual materials such as diagrams or pictures on Gas Kinetic Theory material<br>b. The teacher uses color to highlight important things.<br>c. The teacher uses Multimedia (computer, android and video).<br>d. The teacher gives mine mapping | a. The teacher provides an explanation using a rhythmic tone pattern.<br>b. The teacher encourages students to read the Kinetic Theory of Gases aloud.<br>c. Teachers use multimedia (computers, androids, and videos).<br>d. Teachers use music to teach students<br>e. The teacher repeats the material by discussing the material with the children verbally<br>f. encourage students to create/think of "donkey bridges" to make it easier | a. The teacher explains the lesson using rhythmic tone patterns on the Kinetic Theory of gases<br>b. The teacher encourages students to read the Gas Kinetic Theory material aloud.<br>c. Teachers use multimedia (computer, android, and video)<br>d. Teachers use music to teach students.<br>e. The teacher repeats |

| | | |
|---|---|---|
| assignments to facilitate students' understanding<br>e. The teacher keeps the rights distance because students need to see the teacher as a whole.<br>f. The teacher maintains tidiness and order<br>g. Master calm down and avoid moving too much<br>h. Use the language of visual symbols | to memorize/remember key concepts; | the material by discussing the material with the children verbally<br>f. Encourage students to make/think of a "donkey bridge" to make it easier to memorize/ remember keys concepts |

Source: Nurmaya et al., (2023)

Based on the needs analysis result and learning environment, the researchers created media that could facilitate students in learning the kinetic theory of gases. The MIKiR learning approach is also applied so that students can be enthusiastic and

active in learning towards meaningful learning (Hidayati & Fauziyah, 2022; Nurmaya et al., 2022; Yulisra et al., 2022). Learning approach analysts and learning approaches produce electronic learning worksheets content designs according to Table 1.

The design results in Table 1 are made by electronic learning worksheets using the Flip PDF Professional application. It's shown in Figure 5 by providing visual, auditory, and kinesthetic menus for each activity. Students can choose a menu according to their Learning approach on page xvi as shown in Figure 7.

**Figure 7**

*Menu Of Electronic learning worksheets Activities*


Visual menus for visual Learning approachs are provided with mind mapping, giving different colors for necessary materials and providing experimental flowcharts. Auditory menu for auditory Learning approachs. Auditory learning assisted by voice explanation of material and experiments. Kinesthetic menus for kinesthetic Learning approachs. Learning videos for experimental material and tutorials helped kinesthetic learning in electronic learning worksheets. The features for each Learning approach

need each strategy learning (Nurmaya et al., 2023; RWAP, 2017). The use of electronic student worksheet media as a result of the research provides instructions to students to choose their types of practicums and discussion. Need the effort to carry out differentiated learning. That learning can different in media, processes, and learning products (Malacapay, 2019).

2. Learning Flow Mikir on Electronic learning worksheets

The electronic learning worksheets in this study uses active learning MIKiR has a flow of Experiencing, Interaction, Communication, and Reflection (Rusilowati et al., 2022; RWAP, 2017). Table 5 show elements and indicators MIKiR learning approach.

**Table 5**

*MIKiR learning elements and indicators*

| Elements | Information | Indicators |
|---|---|---|
| Experiencing:<br>Mengalami (M) | an activity (doing), experiments, or observed during the learning process. The experience process can be done by observing, experimenting, and interviewing. | 1) Observing, namely asking questions whose answers can only obtained through observation.<br>2) Conducting experiments, namely giving assignments or asking questions whose answers can only obtained through experimentation/investigation.<br>3) Interviewing, namely asking students to collect certain information by interviewing sources with an interview guide.<br>4) Completing projects, namely giving assignments |

| | | |
|---|---|---|
| | | to complete projects guided by Student Worksheets.<br>5) Writing literary works/articles, namely giving a work assignment to students. |
| Interaction :Interaksi (I) | Exchange of ideas with discussions and responses to other people's mindset | 1) Discussion, namely presenting problems/questions for discussion and asking each group member to give an opinion.<br>2) Asking, namely stimulating students to ask questions.<br>3) Asking for opinions, namely presenting, asking students to give opinions about the facts presented.<br>4) Provide comments that stimulate students to comment.<br>5) Working in groups, namely giving tasks that are suitable to be done in groups.<br>6) Explain each other's work results, namely, discuss in groups to explain each other's work results.<br>7) Answering questions, namely answering and asking questions |
| Communication<br>Komunikasi (Ki) | The process of sharing an individual's ideas, thoughts, or feelings with others. | 1) Demonstrating, namely, asking students to demonstrate.<br>2) Explaining, namely asking students to explain |

| | | |
|---|---|---|
| | Communication can be either oral or written, including sharing ideas, presenting work outcomes, and summarizing group discussion results. | 3) Telling stories, asking students to tell stories according to their experiences.<br>4) Reporting, asking students to report results orally and in writing.<br>5) Expressing, namely asking students to argue, speak, or answer. |
| Reflection:<br>Refleksi (R) | activities to review learning experiences, and take lessons (lessons learned), we can be learning better in the future. | Rethinking work results, namely questioning and asking other students to provide comments (reflecting) |

Source: (Rusilowati et al., 2022)

The MIKiR active learning concept is one of the solutions to 21st-century learning (Siregar et al., 2015; Suryaningsih & Nurlita, 2021). MIKiR flow can make learning meaningful (Siregar & Sari, 2020; Yantoro, 2020) so that, learning goals can be achieved. MIKiR's active learning analysis is applied to an electronic student worksheet and produces the flow of electronic learning worksheets in Figure 1 and Table 1.

3. Integration of Islamic Attitude Values

The spirit corner feature and the integration of the holy verses of the Qur'an. Spirit Corner presents the story of an Islamic Muslim figure with his examples. The

Muslim figures emulated by the electronic learning worksheets are Al-Battani, Al Haitsam, and Al Biruni. The Muslim figure is expected to be an encouragement and role model for lessons. Spirit Corner was given at the end of the Experiencing groove in each learning activity 1 and 2. The integrations of the holy verses of the Qur'an contain Tafsir and ibrah/wisdom of the holy verses of Qur'an, related to the Kinetic Theory of Gases. The Tafsir are the interpretations of the Muslim scholars or the Tafsir experts. While ibroh/wisdom is translated up to the value of Islamic attitudes that most students have. The integration feature of the holy verses of the Qur'an is explained at the end of the Communication flow. Integrate material with verses of the Qur'an. This integration of the holy verses of the Qur'an describes QS Yunus: 101, QS Ali Imron 190-191, and QS Ar-rum: 48.

The Al-Quran encourages educators to be creative and develop effective media to facilitate students' understanding of Allah swt (Mayasri et al., 2020; Susanti & Astuti, 2020). Fahyuni et al. (2020) found that integrating Islamic values with science education is essential for enhancing both knowledge and ethical character, thereby improving student quality. Additionally, technology-based worksheets can be developed in line with the Al-Quran, as demonstrated by Nursulistiyo et al. (2019), who created an integrated approach based on Quranic verses. Furthermore, Wati et al. (2021) developed Physics teaching materials that incorporate the ISETS (Islamic, Science, Environment, Technology, Society) framework to enhance students' Islamic values.

4. Analysis *of* the Quality and Effectiveness of Planting Islamic Values.

The t-test result shows the significance value of the t-test was 0.01 (t-test moreless than 0.05), which can interprete as the implementation of thus electronic learning worksheets was effective at increasing the Islamic attitude values of students. This implementation of E-LKPD (E-Student Worksheet) based on MIKiR (Experiencing, Interaction, Communication, Reflection) integrated with Islamic values potentials to improve students' attitude values. The integration of Islamic attitude values in electronic learning worksheets is founded on research according to Susanti et al., (2020) and Fahyun et al., :(2020), which researchers realized in the habit of praying, stories, and teachings of the Muslim figures. It integrated the Qur'an with the Kinetic Theory of Gases about Islamic attitude values. The dimensions of Islamic attitude values focused on in this study are the attitude value of faith and piety to Allah Swt., 2) the attitude value of piety to Allah Swt., and 3) gratitude to Allah Swt. Integrating Islamic values will provide a deep spiritual dimension to this approach. That is by the mandate in the Decree of the Director General of Islamic Education 4447 Guidelines for Compiling Modules for Madrasah Teachers: 2020 concerning integrating Islam in learning modules in madrasas.

The success of implementing Islamic attitude values in e-student worksheets based on Mengalami interaksi Komunikasi Refleksi (MIKIR) integrated with Islamic attitude values effectively increases students' Islamic attitude values. It could analized as being influenced by the following factors: Design, Interactivity, Learning Context, motivation, Evaluation or feedback, and Individual Diversity.

The Content Design. This research e-student worksheets was designed by combining Kinetic Gas Theory with Islamic attitude values in a relevant manner. The content presented that islamic attitudes in everyday life in the context of learning the

Kinetic theory of Gases. For example, integrating the Ideal Gas Law material with QS Al-Baqoroh: 164 with one of its verses, namely: taking lessons from the Theory Kinetic of Gasses, for example when we wear perfume, the whole room will smell the fragrant perfumes, and when we pass wind, the room will also smell it. That is the nature of ideal gas that fills the walls of the container. It's concluded that if we do good, no matter how small, our goodness will be felt by the environment around us. If we do bad things, no matter how small, it will also be felt by the environment around us. The success of implementing Islamic attitude values in this e-student worksheets based on MIKiR integrated with Islamic attitude values effectively increases students' Islamic attitude values. It could analized as being influenced by the following factors: Design, Interactivity, Learning Context, motivation, Evaluation or feedback, and Individual Diversity.

The Interactivity. E-LKPD provides interactive displays such as video displays of the sound of the holy verses of the Qur'an integrated with the kinetic theory of gases, and prayers before/after studying.

The Learning Context. The context of the place of learning also has an influence. If the Islamic values were applied in e-LKPD without a clear connection to daily life or without being supported by an adequate learning atmosphere, the impact could be limited. The researcher applied the integrated verses of the holy Qur'an. The verses presented are QS Al-Baqoroh in the Laws of Ideal Gas, and QS Ar-Rum verse 48 for the Ideal Gas Microscopic Quantity sub-material.

The Motivation. Islamic motivational content for students contained in the stories of Muslim figures presented. The stories of Muslim scientists can encourage students to be more enthusiastic about learning.

The Evaluation or Feedback. The implementation of e-LKPD must accompanied by continuous evaluation and feedback to students. It can help identify areas where Islamic values can be further emphasized and improved. Students' Islamic attitude values were evaluated through observations during instruction in the control group and the experimental group.

The Individual Diversity. Students have diverse backgrounds, understandings, and views related to Islamic values. A sensitive and inclusive approach is implemented in learning the Kinetic Theory Kinetic of Gases to feel valued and involved in the learning process. By considering factors that increase Islamic attitude values, the implementation of e-LKPD based on MIKiR integrated with Islam was effective in increasing. The application of Islamic attitude values among students. However, its success, it was dependent on goods implementation and support from various related parties (Nursulistiyo et al., 2019).

## Implication

Physics instruction should consider students' needs by aligning with their Learning approachs. Differentiated approaches in media, processes, and learning products require the creativity of educators. Differentiated learning in media, processes, and learning products needs the creativity of educators. MIKiR's active learning approach is suggested to be applied in physics learning because that learning becomes meaningful. Learning by paying attention to local culture is also important, namely integrating Islamic values.

The electronic learning worksheets in this study combines differentiated learning, MIKiR active learning, and Islamic integration. This electronic learning worksheets are very feasible to apply in learning Physics metrics and the kinetic Theory of Gas with a feasibility value of material expert was 86.83, and media expert was 86.46. The integration of Islamic attitude values into the electronic learning worksheets influences the Islamic attitude values of students with a significance value of 0.01. The effect of treatment on Learning approach variants used a one-way ANOVA test with significancy value 0.387. It's mean that e-learning worksheet effective for differentiated learning.

## Limitation and Future Research Directions

This research is limited to the field of physics of kinetic theory of gases. This research can be applied to other physics materials or can be applied to fields other than physics**.**

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# LITERACY ANALYSIS ON DIGITAL LITERACY HABITUATION AND INTEGRATION AS A SUPPORT FOR THE IMPLEMENTATION OF THE MERDEKA CURRICULUM

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## EXTENDED ABSTRACT

## ABSTRACT

The innovation of the community-based Digital Literacy training management model can be carried out due to breakthroughs, courage to make decisions, coordination, and synergy with various parties, especially education stakeholders. Implementation of the Merdeka Curriculum is a must and requires support from various parties. One of them is strengthening digital literacy, which cannot be separated from fostering a culture of literacy. This study aims to determine the effect of understanding literacy (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on the habituation and integration of digital literacy of participants after attending training as one of the supports for the Implementation of the Merdeka Curriculum. The methodology used is research and development with data collection techniques such as documentation, observation, and questionnaire filling, which are

analyzed with the SPSS application. Of the 677 training participants who took part in online and offline training, 584 passed. Of the 677 participants, with random sampling techniques, 198 respondents, consisting of 44 male participants and 155 female participants, were willing to fill out questionnaires. After attending the training, the model innovation continued to be diffused to other teachers, so that it had a direct impact, especially on the implementation of digital literacy in each school to support the implementation of the Merdeka Curriculum. Thus, free teachers innovate and provide knowledge to their students in the classroom without any separation distance. Keywords: Digital literacy, habituation and integration, Merdeka Curriculum.

## Introduction

Education as a systembenefits from a well-planned innovation strategy. Contrary to popular belief, education is not opposed to innovation; the rate of change in education is comparable to that in the public sector, and educators see their workplace as innovative as the economy at large. However, education fails to utilize technology to increase productivity, improve efficiency, enhance quality, and promote equity like other public sectors. Innovation policy in education often focuses on fragmented issues or misguided goals, sometimes out of a desire for quick results but without sustainable long-term benefits. A well-planned innovation strategy in education can harness the potential of new technologies and, with the right policy mix, drive efficiency and better outcomes in terms of quality and equity(OECD, 2016). In a survey conducted by the Indonesian Internet Service Providers Association for the period 2022–2023, there were 215.63 million internet users in Indonesia. Compared to the previous period, there were 210.03 million users, or an increase of 2.67%.

Technological changes due to increasing 21st century challenges and social and ecological conditions are happening around the world. In fact, technological disruption impacts all sectors, demographic changes, and the socio-economic profile of the world's population.

Entering the 21st century, the six basic literacy skills launched by the World Economic Forum in 2015 must be mastered. The six basic skills are literacy, numeracy, science, financial, digital, and civic literacy. In his book Digital Literacy, Paul Gilster (1997) explain that digital literacy is defined as the ability to understand and use information in various forms from a variety of sources accessed through a single computing device. Digital literacy is one of the six types of literacy that must be mastered in order to contribute to the global community. The other types of literacy are reading and writing literacy, numeracy literacy, science literacy, financial literacy, and cultural and civic literacy.

From a pedagogical perspective, literacy is not just a learning material but an indicator of successful curriculum implementation. In the Merdeka curriculum, literacy is the process of gaining access to and interpreting text through listening, reading, and observing. Although the definition of literacy is related to language teaching, it can be applied to other subjects. PISA (*The Program for International Student Assessment*) defines digital literacy as a reflection of cognitive competence, ranging from interpreting the structure and characteristics of textual presentation to understanding information about natural phenomena. To develop an understanding of the information, metacognitive competence becomes a translator, both in the stages of understanding the structure and presentation of texts and information about natural phenomena. Language teaching is the starting point for literacy in other areas.

Language sentences and paragraphs reveal the logical structure of language and, at the same time, the logical structure of other branches of knowledge.

There have been several advances in digitization, specialized digital tools, alternative metrics, and guidelines that are largely unknown to many authors. It is clear that digital literacy needs to be improved by addressing the more nuanced aspects of Open Access publishing. Parental digital literacy is important because parents are the key players in the literacy development of a family. The digital knowledge workshop model for parents has a number of advantages, such as saving time, combining theory and practice, and supporting parents to deepen their knowledge and skills about communication. digital communication(Nurhayati et al., 2022).

Merdeka Curriculum is one of the 15th episodes of *Independent Learning Program* and was launched on February 11, 2022. This is based on the COVID-19 pandemic, the learning crisis that occurred caused education to fall further behind in terms of learning loss and the widening of learning gaps between regions and socio-economics. To restore learning after the pandemic, the Ministry of Education and Culture underlines the importance of simplifying the curriculum in the form of a critical curriculum for special circumstances. This emergency curriculum simplification is effective in alleviating learning delays during the COVID-19 pandemic. According to MoEC, the effectiveness of the curriculum in specific situations underscores the importance of broader changes in curriculum design and delivery strategies. Before the pandemic, literacy skills reached 129 and dropped to 77 after the pandemic lasted six months. Meanwhile, numeracy skills were 78 before the pandemic and dropped to 34 after the pandemic lasted six months.

There are four types of digital literacy: digital safety, digital ethics, digital culture, and digital skills. Moreover, in the Merdeka Curriculum as part of the Independent Learning Program, digital literacy is very important to be understood and integrated into comprehensive learning. Some things have changed fundamentally and are characterized by a series of challenges arising from digital content that affect life, including learning. Some of the challenges that most people face when interacting with digital content include: (1) how to understand and then respond to the values attached to other experiences shared through digital content; (2) how to create digital content metadata that is integrated with the content and, of course, validated metadata; (3) how to open access to digital content when downloading and uploading; (4) how to utilize digital content that can be shared or combined with other digital content.

Teachers showed positive attitudes towards reading digital texts, but had misconceptions about knowledge and practice. Therefore, it is suggested that English teachers need specialized knowledge about reading online as new reading. Teachers' knowledge, attitudes, and experiences affect how they practice reading, especially with digital texts. Therefore, teachers should do more digital text reading to help students in the classroom by attending digital text teaching workshops regularly(Laeli & Setiawan, 2020)

The COVID-19 pandemic has several positive impacts on students' technological literacy and learning experience. This shows that the COVID-19 pandemic can have a positive impact from different perspectives(Kemala Sari, 2021). The concept of integrating information technology and curricula, understanding the integration of information technology and the content of a particular subject, and guiding the

optimal teaching design has formed a major research trend. and has a certain role(Zhang et al., 2022). Project-based learning is an educational approach that integrates 21st-century skills to prepare students to be productive and gain employment(Isa et al., 2020). Training and education activities on environmental issues have been integrated into various fields(Martínez-Borreguero et al., 2020).

Digital communication technology should take computing as a framework, catering for artistic creation with a broad integration between technology and art(Zhan et al., 2022). Literately solve problems of curriculum integration and development(Yu & Gong, 2022) dan its importance and suitability for integration into the curriculum(Francis et al., 2020). Technologically advanced school leaders must do more research and put more thought into the use of ICT in their schools. They must ensure that their school's ICT mission, vision, values, and beliefs are consistent with the opportunities offered to teachers and students. Principal technology leadership is an important factor influencing the effective use of ICT in the classroom. When well integrated, technology becomes an accelerator that makes learning more interactive and creative for students. Cognitive development is very important. Children's cognitive abilities can be enhanced by guiding them to watch the right content. Media literacy to understand children's cartoon programs is essential for their cognitive, emotional, and behavioral development. Media literacy workshops in schools have shown that these activities can be integrated into the curriculum, which can help children understand visual content.

Human Resources (HR) has a very decisive role in the life and death of an organization. There are changes in the role of HR in the organization, namely: drivers of productivity, responsiveness, service, commitment, and organizational strategy. HR

challenges can come from both inside and outside the organization. External challenges include technology, the economy, political and government situations, socio-cultural, demographic, and geographic conditions, labor market conditions, competitors, globalization, and rapid change. While internal challenges come from organizational character, employee unions, information systems, individual employee differences, and value systems, the last one is HR productivity. HR productivity is the most important thing. The more productive the organization, the higher its competitive advantage. A high productivity of human resources will lead to a higher standard of living.

Professional Teachers are a special requirement for the implementation of 21st-century learning. The success of learning and general education depends on the presence of professional teachers(Budiwati et al., 2019). The central position of teachers in student learning must be matched by continuous monitoring of teacher quality (Sumaryanta et al., 2018). Teachers who encourage the use of student-centered strategies that include a variety of techniques. Teachers who are able to interact with their students and guide and suggest choices according to teaching style characteristics(Sim & Mohd Matore, 2022).

The characteristics of quality human resources are employees who are able to carry out tasks and work well, are productive, work with targets, have high motivation, are patient and work hard, pay attention to detailed work, think and act positively, and maintain and build social relationships. From the survey conducted by the Ministry of Education and Research, as presented by the Minister of Education and Research, related to the Merdeka Curriculum. The survey was conducted on 18,370 grade 1-3 elementary school students in 612 schools in 20 districts or cities in 8 provinces,

showing significant differences in learning outcomes between the 2013 Curriculum and the Emergency Curriculum. PISA results show that 70% of 15-year-old students do not have the minimum ability to read easily or apply basic mathematical concepts. These PISA scores have not improved significantly in the last ten or fifteen years. Research shows that there are large differences in the quality of learning between regions and socio-economic groups. This is exacerbated by the COVID-19 pandemic. To address the problem, the Ministry of Education and Culture simplified the special circumstances (emergency) curriculum to reduce learning losses during the pandemic. The finding that 31.5% of schools use emergency education suggests that implementing an emergency curriculum can reduce the impact of the pandemic by 73% for literacy and 86% for numeracy.

The proposed program could enhance the information technology skills, artistic abilities, technical skills, and career skills of students with special needs(Lu et al., 2022). The effectiveness of good-quality learning is introduced in seven categories, as follows: (1) belief in sustainability in teaching; (2) trend of talent demand; (3) value of sustainable teaching; (4) curriculum mapping; (5) teaching approach; (6) teaching evaluation; and (7) management of sustainable teaching development(Lai & Peng, 2020). Curriculum is an important factor in students' academic success, and comprehensive, content-rich curricula are a common feature of academically high-performing countries (Opatha, 2019). These apprenticeship reforms do not reflect how to support the appropriate graduation requirements for certification in technical education and do not incorporate ideological politics into the curriculum for earning a valuable degree(Yao et al., 2022).

A key feature of this curriculum that supports learning recovery is the focus on essential material to enable deeper learning and allow more time for skill and character development in groups through learning in real contexts (such as in the Pancasila Learner Profile Strengthening Project). Graduated learning outcomes and flexible lesson times promote learning that is enjoyable and appropriate to learners' needs and education unit conditions. Provide teachers with the flexibility and support with teaching and learning materials they need to develop lesson plans and implement quality learning. Prioritizing mutually beneficial cooperation with all parties to support the implementation of the Merdeka Curriculum.

The direction of curriculum change covered by Merdeka Curriculum Episode 15 is a more flexible curriculum structure that focuses on essential material, gives teachers the flexibility to use different teaching tools according to the needs and characteristics of students, and provides applications that can be provided by different teachers in developing independent lessons and sharing best practices. In the current era of rampant learning, schools are given the freedom to choose which of three curricula to follow or not. The first choice is the full 2013 curriculum, the second urgent curriculum is the simplified 2013 curriculum; and the third choice is the Merdeka Curriculum. The government is preparing a questionnaire that will allow education units to assess a school's willingness to use the Merdeka Curriculum.

Overall, digital literacy did not have a significant impact on the self-directed learning of students attending general English courses. Therefore, according to students, efforts to improve digital literacy in programs such as computer courses and digital technology management workshops do not provide significant benefits for independent language learning. Secondly, it is assumed that digital literacy has no

significant impact on effective language learning. Therefore, the process of developing students' skills that focus on digital literacy is considered to have a significant impact on the effectiveness of students' learning so that the goals of the educational process can be achieved. Thirdly, the ability to self-organize language learning is likely to have a significant and positive impact on achieving effective learning.

From these problems, this paper aims to determine the management model of digital literacy training development that has been carried out; the impact of the management model of digital literacy training development that has been carried out, the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and school literacy movements) on habituation, The effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and school literacy movements) on habituation; the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and school literacy movements) on digital literacy integration; how to diffuse or disseminate trainees after being declared to have passed the training; and the impact of Digital Literacy Training on the Implementation of the Merdeka Curriculum.

This research provides benefits related to the management model for developing digital literacy training to support the implementation of the Merdeka Curriculum and its impact, knowing the effect of literacy understanding on habituation in the classroom, knowing the effect of literacy understanding on integration in learning, and knowing the dissemination of participants after passing the training in supporting the *Indipendent Learning Program*.

## Methodology

### Population and Sample

The research method used is research and development. The choice of development method is very important because the product or model developed will be widely used in training. This study uses the research and development process(Meredithd Gall Walter R Borg Joyce P Gall, 2003) with documentation, observations, and questionnaire data collection techniques (questionnaires). The development uses the systems approach of Dick and Carey's (2015) model ADDIE (analysis, design, development, production, deployment, delivery, and evaluation). The study population included all teachers in the Rembang Regency. The sample for this study included teachers from Rembang Regency, with a total of 198 teachers from different levels and 14 sub-districts. The sample used consisted of digital literacy training participants of different levels, with random sampling techniques for respondents who completed the questionnaire with participants in this table 1.

**Tabel 1**

*Digital Literacy Training Participants*

| | | Frequence | (%) |
|---|---|---|---|
| School Level | | | |
| 1 | Kindergarten and Early Childhood Education | 3 | 0.26 |
| 2 | Elementary School or equivalent level | 774 | 67.42 |
| 3 | Junior High School or equivalent level | 323 | 28.14 |
| 4 | Senior High School or equivalent level | 44 | 3.83 |
| 5 | Higher Education and Public | 4 | 0.35 |
| | Total | 1.148 | |
| Type of Training | | | |
| 1 | Online | 822 | 71.60 |
| 2 | Offline | 62 | 5.40 |

| | | | |
|---|---|---|---|
| 3 | Online and Offline | 264 | 23.00 |
| | Total | 1.148 | |

**Research Design**

This approach is used for continuous improvement of educational products through four main stages: design, development, implementation, evaluation, and control at each stage. The source of the research data was document-based data collection techniques from January to July 2022. The table below shows the growth of digital literacy training participants.

The research design began with collecting teacher data that could be downloaded from dapo.kemdikbud.go.id. This was followed by coordination with the Rembang district education, youth, and sports office and the education office branch in Region III of Central Java province. From the results of this coordination, it was agreed that there would be a quota of 2 teachers per school for the primary level and 5 teachers per school for the junior secondary level, including the principal. After there was an understanding with the various parties, a training model was designed, and trainers were invited to deliver the training or guide the training.

**Research Instruments**

After recapitulating the data, the research focused on the implementation of the Digital Literacy Workshop activities. This was followed by compiling an instrument for the Literacy survey by choosing one of the following numbers with an answer description: (1) Strongly Disagree, (2) Disagree, (3) Don't Know, (4) Agree, and (5) Strongly Agree. The instruments include: literacy in general, types of literacy, literacy competencies, the school literacy movement, classroom habituation, literacy integration, and digital literacy.

## Data Collection Techniques

Data collection techniques through documentation, model development, observation, and questionnaires were provided to teachers who attended the Digital Literacy Workshop in Rembang Regency. Of the 677 participants who took part in the workshop, 198 were willing to fill out the instrument given along with the data collection for the issuance of Certificates by the Committee with the help of the Google Form application, which was filled out online by the participants.

The source of research data with data collection techniques through documentation from January to July 2022. The table 2 below shows the development of Digital Literacy Workshop registrants.

**Table 2**

*Profile of participants (respondents)*

| | Frequency | (%) |
|---|---|---|
| Gender | | |
| 1. Male | 44 | 22.11 |
| 2 Female | 154 | 77.89 |
| School Level | | |
| 1. Elementary School or equivalent level | 140 | 70.35 |
| 2. Junior High School or equivalent level | 53 | 27.14 |
| 3. Senior High School or equivalent level | 5 | 2.51 |
| Type of Training | | |
| 1. Online | 162 | 81.41 |
| 2. Offline | 10 | 5.03 |
| 3. Online and Offline | 26 | 13.57 |

## Analysis Data

Data processing uses descriptive quantitative analysis from documentation studies, observations, and instruments filled in by respondents online using the Google

Form application. Furthermore, the data from the respondents' entries was processed simply using the SPSS application and the Microsoft Excel application. The results were analyzed using existing supporting sources, and descriptions were made

## Findings

Documentation data collected and downloaded from the Ministry of Education and Culture's website found that nationally there are 3,29,214 teachers educating 51,066,116 students and 443,113 schools of all levels. When broken down by level, the largest number of teachers are from primary schools and are female equivalen 1.036.795.

The results of the questionnaire were completed by 198 respondents out of 677 who participated in training in general literacy, types of literacy, literacy skills, the literacy movement in schools, the importance of literacy, inclusion, and digital literacy.

The results of the analysis with the SPSS application for the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on habituation are shown below.

**Figure 1**

*SPSS output results related to the effect of literacy on habituation.*

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .815[a] | .664 | .657 | 2.20227 |

a. Predictors: (Constant), School Literacy Movement, Types of Literacy, General Literacy, Literacy Competencies

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1857.989 | 4 | 464.497 | 95.773 | .000[b] |
| | Residual | 940.895 | 194 | 4.850 | | |
| | Total | 2798.884 | 198 | | | |

a. Dependent Variable: Habituation of Literacy

b. Predictors: (Constant), School Literacy Movement, Types of Literacy, General Literacy, Literacy Competencies

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 5.043 | 1.400 | | 3.603 | .000 |
| | General Literacy | .029 | .100 | .024 | .289 | .773 |
| | Types of Literacy | .030 | .091 | .026 | .332 | .740 |
| | Literacy Competencies | .386 | .206 | .155 | 1.870 | .063 |
| | School Literacy Movement | .465 | .055 | .649 | 8.479 | .000 |

a. Dependent Variable: Habituation of Literacy

The results of the analysis with the SPSS application for the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on integration obtained results as shown below.

**Figure 2**

*SPSS output results related to the effect of literacy on integration.*

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .753[a] | .567 | .558 | 1.49388 |

a. Predictors: (Constant), School Literacy Movement, Types of Literacy, General Literacy, Literacy Competencies

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 566.763 | 4 | 141.691 | 63.491 | .000[b] |
| | Residual | 432.946 | 194 | 2.232 | | |
| | Total | 999.709 | 198 | | | |

a. Dependent Variable: Integration Literacy

b. Predictors: (Constant), School Literacy Movement, Types of Literacy, General Literacy, Literacy Competencies

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 6.992 | .949 | | 7.364 | .000 |
| | General Literacy | .083 | .068 | .114 | 1.222 | .223 |
| | Types of Literacy | .139 | .062 | .202 | 2.256 | .025 |
| | Literacy Competencies | .473 | .140 | .318 | 3.379 | .001 |
| | School Literacy Movement | .079 | .037 | .185 | 2.131 | .034 |

a. Dependent Variable: Integration Literacy

## Discussion

Human resource development in the field of education refers to the theory of adult development, which aims to further improve quality, perfection, or maximization of functions and not increase physical weight. From the Ministry of Education's basic education data as shown in the table above, there are 3,329,214 teachers, 941,237 education personnel and 51,066,116 students from 443,113 schools at the levels of Early Childhood Education, Primary Schools, Junior High Schools, Special Schools, Senior High Schools, Vocational High Schools, and Teaching and Learning Centers. Nationally, the student-teacher ratio is 1:15.

From the data table above, the large number of teachers requires multiple efforts to make teachers competent, reliable, professional, qualified and sustainable through: (1) education and training; (2) aligning the education and training curriculum for teachers and education personnel with the needs of students, the world of work and the Indonesian National Qualification Competencies (KKNI); (3) strengthening the education quality assurance function at the central and regional levels; (4) strengthening cooperation between education stakeholders including professional organizations; (5) improving the system for distributing professional

allowances; and (6) improving the career, reward and protection system for teachers and education personnel.

Some of the steps that must be taken to create a training program are: (1) determining needs; (2) determining targets; (3) determining program content; (4) identifying learning principles; (5) implementing the program; and (6) assessing the success of the program.

Recent research on innovation and innovation processes has increasingly focused on so-called people-based, practice-based, or workplace-based innovation. Traditionally, achieving innovation has been seen as a linear process from scientific research to real-world applications of innovation. With the participation of a number of related organizations, the activity opened by the Regent involved all primary, elementary, and secondary education superintendents. A total of 326 people participated offline in Rembang's office lobby, and the remaining 882 participated online. As a result, the digital literacy training was conducted by 1,148 participants, i.e., 1,130 participants registered online and 18 participants registered onsite.

Advanced training courses take place offline and online, depending on the student's choice. Rembang's regent was the keynote speaker, followed by a plenary session with speakers Indra Charismiadji (Jakarta) and Ary Prabowo (Semarang). Consumption for all participants is supported by Siberkreasi-Kemenkominfo RI. Meanwhile, the online installation is supported by the Rembang Regency IT and Communications Office and Kemenkominfo RI through the Zoom meeting app.

Among the 1,148 students who registered and attended the opening ceremony, 774 (67.42%) were primary school students, and 323 (28.14%) were secondary school students. Others come from senior high schools, Vocational High Schools, and

general high schools. After the inaugural activity, participants received a link to complete the re-registration form to continue training. A total of 677 participants, or 59% of the 1,148 participants at the opening ceremony, pursued the following document: Including 457 (67.5%) at the elementary level, 173 (25.6%) at the junior high level, and the rest at the Early Childhood Education, Primary Schools, Junior High Schools, Special Schools, Senior High Schools, Vocational High Schools, and Teaching and Learning Centers levels. Participants are divided into 28 classes of 24–25 participants. There are 26 online courses and 2 offline courses. Each class is supervised by two GMT alumni. After completing 3 advanced training sessions, 584 teachers (86.26%) met the requirements and were granted 32 JP training certificates. While the remaining 93 participants (13.74%) were declared unsuccessful and did not receive a certificate.

**Figure 3**

*Opening (a) by the Regent of Rembang (b) Offline participants*


(a) (b)

In design and reflection, it is explained that the quality of the design is influenced by variables such as shaping, creativity, process strategy, and alternative creativity. An important part of problem solving with design thinking is the ability to summarize

information from multiple sources (Cross, 2007; Pink, 2006; Simon, 1996) into a coherent whole(Chinggsinggchai & Huang-Yaoohong, 2015). Design thinking is interdisciplinary. The problem-solving process involves not only drawings or sketches, but also the creation and use of models, simulations, and prototypes.

ICT tools and skills can provide more flexible and responsive resources that meet the learning needs and interests of different students. Peer learning can be as important in this context as teacher support. Actively interacting with digital objects can be a more effective way of learning than passively absorbing teacher-led learning. Design thinking aims to use knowledge and practice to find possible solutions that meet the needs and interests of society in today's challenging social context. Student-centered design thinking also encourages empathy and promotes personality development in students. Unlike scientific thinking, which sees uncertainty and ambiguity as threats to the growth of knowledge, conceptual thinking develops around ambiguity and uncertainty. As such, it enhances the student's educational experience by encouraging creative and reflective thinking, self-awareness, and social awareness. In short, design thinking methods that promote many desirable traits have been identified as 21st century skills. Some of the impacts that are inseparable from digital literacy include the emergence of a digital society.

Starting from conceptualizing, analyzing training needs, designing the entire training program, developing, compiling, and producing training materials, implementing the training program, and evaluating the effectiveness of the document (Dessler, 2013). The design of the development process is carried out in collaboration with educational actors and the National Movement for Digital Literacy under the supervision of the Ministry of Information and Communications, with the Indonesian

programs Makin Kakap Digital and #jempolwaras. He started by coordinating with representatives of Siberkreasi of Central Java-DIY, the Office of Education, Youth, and Sports of Rembang, and the Office of Media and Information of the Regency of Rembang, followed by coordination with Rembang's regent. As a result of coordination with the regent, Education, Youth and Sports Office, the information and communication office, IGI, and the association of literacy activists of Rembang with Siberkreasi Central Java-DIY, it was agreed that there would be a combined squad.

This activity is the dissemination of the results of the training conducted online with the Google Master Trainer (GMT) concept. GMT training graduates are deployed to train offline or online training participants using the @belajar.id account. Teachers who do not have the opportunity to attend GMT will learn from GMT alumni. Documentation is provided after opening, and the main document includes information on using the @belajar.id account for learning, optimizing the use of Google Docs, Google Meet, Google Drive, Google Sheets, Google Slides, and other learning aids supported by @belajar.id, as well as @unnes.ac.id account documentation. The impact of the diffusion and innovation of the digital literacy training model has been very beneficial for teachers in optimizing the @belajar.id account for learning. One type of digital literacy, called digital skills, will be completed. Meanwhile, three other types of digital literacy are included at the opening and on the first day of training.

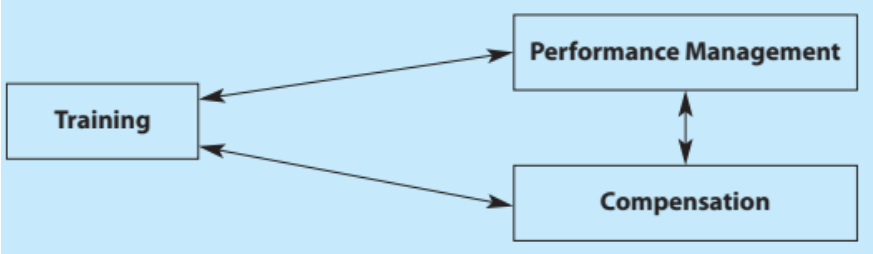
The principles of teacher education and development are: (1) implemented for all levels of education; (2) targeting behavioral changes to improve professional skills; (3) implemented to encourage each individual's contribution to educational progress; (4) initiating and directing individual training and education before and after taking

office; (5) designed to meet the needs of promotion, career advancement, problem solving, maintaining work motivation, and school continuity; and (6) career development must be tailored to the category of teachers and education personnel.

Another key driver of training is to ensure that desired training outcomes are reinforced as employees achieve or complete them. When training, performance measurement, and rewards are delivered individually and not integrated into a larger, more comprehensive HR strategy, they are less likely to receive the appropriate and necessary reinforcement. The tools used to evaluate employee performance should reflect this change.

**Figure 3**

*Relationship between Training and Performance(Jeffry A. Mello, 2015)*




As explained by Armstrong (2009, 664), learning and development are the processes of gaining and developing knowledge, skills, abilities, behaviors, and attitudes through learning or experience. This is because experienced and qualified employees will have the knowledge, skills, involvement, and commitment needed. Learning is the means by which a person acquires and develops skills, abilities, behaviors, and attitudes. Learning is a continuous process that not only enhances existing abilities but also prepares people to take on greater responsibilities in the future. Development to ensure that people's abilities and potentials are developed and

realized through the delivery of learning experiences (self-directed or self-directed learning).

Learning and development approaches, according to Armstrong (2009:666), are as follows: (1) Informal and Formal learning Formal learning is planned and systematic. It uses structured training programs consisting of instruction and practice that can be done on or off the job. Informal learning is experiential learning. It occurs when people learn on the job while working. (2) E-learning. E-learning provides learning through computers, networks, and web-based technologies. The process consists of defining the system, encouraging access, providing advice and assistance to each learner, and encouraging and facilitating the formation of a learning community while meeting individual learning needs. (3) Blended learning Blended learning is a combination of learning methods that enhance the overall effectiveness of the learning process by providing different learning combinations that complement and support each other. Blended learning programs use a combination of self-directed learning activities identified in personal development plans, online learning facilities, group learning activities, training or mentoring, and other activities. internal or external courses (4) Self-directed learning Self-directed learning involves encouraging individuals to take responsibility for their own learning needs. Through self-reflective learning, which is a type of learning that involves encouraging individuals to develop new patterns of understanding, thinking, and behavior, (5) Development. Developed in the form of learning activities that prepare people to take on broader or increased responsibilities. In development programs, the focus is on self-directed independent learning as described above, personal development planning (with a learning contract), and planned experiential learning; (6) Training. Training is the planned and

systematic use of instructional activities to promote learning. This approach can be summed up by the idiom "student-centered training(Arsmstrong, 2009). Training-type programs can involve any of the following: (1) craft skills, including modern apprenticeships; (2) computer skills; (3) training team leaders or supervisors; (4) management training; (5) communication skills, e.g., leadership, teamwork, team dynamics, neurolinguistic programming; (6) personal skills, e.g., assertiveness, coaching, communication, time management; (7) training in organizational procedures or practices, such as referral, health and safety, performance management, equal opportunity, or management of diversity policies and practices

The implementation of quality pedagogical innovation can give color to the innovation itself. Sources of new ideas and new services are identified as emerging or well-understood needs in society(Schröer, 2021). The innovative decision-making process is the process by which the decision maker gains first-hand knowledge of the innovation, forms an attitude towards it, accepts or rejects the decision, implements the new idea, and confirms the decision(Rogers, 1983). The key to effective intervention is the implementation of moderate or very extensive school management and implementation by school administrators(Bae et al., 2019)

Teachers need to develop the right skills to use innovation. Within this framework, initial and advanced training courses are organized to inform teachers about new technologies(Çalışkan & İzmirli, 2020). The development of teacher capacity according to needs is a necessary condition for schools to improve the quality of education. Needs-based planning and assessment of teacher development needs. In line with Industry 4.0 changes and the need to improve team quality, teacher skills development focuses on improving teachers' literacy assessments. Needs-based

assessment skills development programs and training have the potential to improve teachers' ability to assess and enhance student learning outcomes.

Training should be conducted periodically, and knowledge should be gained through internal and external training(Saidi & Habibi, 2022). Various types of training have not yet existed massively in the form of digital literacy training and workshop, explains that training is a systematic process for changing the behavior of members in a direction that achieves organizational goals(Ivancevich, 2010).

The results of the study (Bokhari & Myeong, 2022) will help the government build Smart Cities. So social innovation factors should be included in decision-making. Because smart decision-making will share the information collected with entrepreneurs, companies, and industries and benefit society and all related interests, including social innovators. Research results do not support the impact of IT infrastructure on Big Data Analytics(Baig et al., 2021). Based on these findings, it provides guidelines for the successful implementation of Big Data in higher education. Innovation strategies to reduce costs, comply with regulations and the environment, focus on production and meet demand, and expand markets have a positive impact on innovation and competitiveness. Thus, it takes courage to make innovative decisions.

From the digital literacy guidelines related to the concept of literacy in the 2013 Curriculum prepared by the Ministry of Education and Culture, it is explained that digital literacy is the integration and application of cognitive and technical skills, including knowledge, use, and interpretation of information. The five areas include access, control, integration, analysis, and creation. Digital skills learning has a pedagogic mission to develop Indonesian people into critical, creative, innovative, and

productive human beings by striving to build digital skills that are integrated with other knowledge and develop affective digital attitudes and skills (attitudes and skills towards digital) to become people of character.

Digital literacy is a form of literacy developed specifically to advance teaching and education in Indonesia. Thus, education can meet the expected criteria and achievements and educate the nation's life. With good reading skills, Indonesia is expected to be able to compete for leadership in the international world. The success of literacy must be supported by all components of the world of education, especially the role of school educators, which aims to direct, guide, encourage, and assess the development of students' potential in accordance with the expected competencies and advancement. The concept of digital literacy is expected to be a guide for teachers in acquiring literacy. This literacy concept can change students' understanding when literacy is actually applied in the teaching and learning process at school.

Based on data analysis using SPSS, which can be seen in Figure 1 above, the correlation value is 0.815, meaning that the percentage of independent variables to the dependent variable is 81.5% and indicates that there is a strong relationship between the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on habituation. From the output of Figure 1, the $R_{square}$ value of 0.664 is obtained, indicating that variable the effect of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) can explain variable on habituation by 66.4%. While 34.6% is explained by other factors. The error rate can be seen from the Standard Error Estimete (SEE) of 2.2023.

The Regression Equation for Refraction is:

$$Y = 5.043 + 0.029X_1 + 0.03\ X_2 + 0.386X_3 + 0.465X_4$$

From the equation above, the magnitude of the regression coefficient 1 is 0.029, which indicates that increasing $X_1$ will increase variable Y by 0.029 and increase it to 0.465. With a significance level of 5% and from the ANOVA analysis, the $F_{count}$ value is 95.773, with the $F_{table}$ for 198 respondents being 3.98. Because $F_{count} > F_{tabel}$ and with a significance level of 0, it can be concluded that the null hypothesis is rejected and the alternative hypothesis is accepted, which means that variable X simultaneously affects variable Y.

The results of the regression analysis of variable $X_1$ on Y show a t value of 0.289 with a significance level of 0.773, and $X_2$ on Y shows a t value of 0.332 with a significance level of 0.770. This means that $X_1$ and $X_2$ do not have a significant effect on Y. Meanwhile, $X_3$ has a $t_{count}$ of 1.87 and a significance level of 0.063. This means that X3 has an influence on Y, but it is not very significant.

Based on the regression coefficient value ($\beta$), the variable that has the most dominant influence on variable Y is $X_4$. Where the regression coefficient value ($\beta$) is 0.649 with a $t_{count}$ value of 8.479 and a significance level of 0. It is known that the $t_{table}$ for 198 respondents is 1.625. So, it can be concluded that variable $X_4$ has the most dominant influence on variable Y.

From the analysis of SPSS results, it can be explained that in general there is an influence of literacy understanding (literacy in general, types of literacy, literacy competencies and the school literacy movement) on habituation. This is indicated by the value of R = 0.815, meaning that 81.5% of literacy understanding influences literacy habituation in the classroom. When broken down by variable, the School Literacy Movement variable provides the most dominant influence as evidenced by the

$t_{count}$ value of 8.479 far above the $t_{table}$ for 198 respondents of 1.653. The literacy variables in general and types of literacy did not have a significant effect. This is evidenced by the $t_{count}$ value far below the $t_{table}$ value. For the literacy competency understanding variable, it has a less significant effect on habituation in the classroom. This is evidenced by the tcount value being far below the ttable value. For the literacy competency understanding variable, it has a not too significant influence on habituation in the classroom, with a value of 1.870 and a significance level of 0.063.

For the analysis of literacy integration in the classroom. This is evidenced by the $t_{count}$ value being far below the $t_{table}$ value. From Figure 2, the summary related to the variables that influence the integration above, the correlation value is 0.753, meaning that the percentage of independent variables to the dependent variable is 75.3% and indicates that there is a strong relationship between $X_1$, $X_2$, $X_3$, and $X_4$ to Y. From the output of Figure 2, the $R_{square}$ value of 0.567 is obtained, indicating that variable X can explain variable Y by 56.7%. While 43.7% is explained by other factors. The error rate can be seen from the Standard Error Estimete (SEE) of 1.494.

The Regression Equation for Learning Integration in the classroom is:

$$Y = 6.692 + 0.083X_1 + 0.139\ X_2 + 0.473X_3 + 0.079X_4$$

From the equation above, the magnitude of the regression coefficient 2 is 0.083, which indicates that increasing $X_1$ will increase variable Y by 0.083, and there is an increase to 0.473. With a significance level of 5% and from the ANOVA analysis, the $F_{count}$ value is 63.491, and the $F_{table}$ for 198 respondents is 3.98. Because the value of $F_{count}$ is greater than $F_{table}$ and with a significance level of 0, it can be concluded that the null hypothesis is rejected and the alternative hypothesis is accepted, which means that the X variables simultaneously affect Y.

The results of the regression analysis of variable $X_1$ on Y show a t value of 1.222 with a significance level of 0.223, and $X_2$ on Y shows a t value of 2.256 with a significance level of 0.025. This means that X1 does not have a significant effect on Y. While $X_2$ has a significant effect on Y. $X_3$ has a t-count of 3.379 and a significance level of 0.001. This means that $X_3$ has an influence on Y but is the most significant among other variables.

Based on the regression coefficient value ($\beta$), variable $X_4$ has a less dominant influence on variable Y. Where the regression coefficient value ($\beta$) is 0.079 with a $t_{count}$ value of 2,131,479 and a significance level of 0.34. It is known that the t-table for 198 respondents is 1.625. So, it can be concluded that variable X3 has the most dominant influence on variable Y.

From the analysis of SPSS results, it can be explained that, in general, there is an influence of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on literacy integration in learning. This is indicated by the value of R = 0.753, meaning that 75.3% of literacy understanding influences literacy integration in the classroom. When broken down by variable, the variable understanding of literacy competence has the most dominant influence, as evidenced by the $t_{count}$ value of 3.379, far above the $t_{table}$ for 198 respondents of 1.653. The variables of literacy in general and types of literacy have a less significant effect. This is evidenced by the $t_{count}$ value being far below the $t_{table}$ value. For the school literacy movement variable, it has a not-too-significant influence on the integration of literacy in classroom learning with a value of 2.131 and a significance level of 0.033.

In addition to being given forms to fill out online, participants are also required to disseminate and diffuse them to at least one teacher at school as a condition for obtaining a Training Certificate. With this kind of capital, training participants will understand more about digital literacy. In fact, each participant is required to open the Independent Teaching Platform as one of the supporting components for implementing the Merdeka Curriculum. Through training models like this, participants will be more capable and ready to implement digital literacy in classroom learning. Thus, it will have an impact on the massive implementation of the Merdeka curriculum supported by digital literacy skills.

## Conclusion

The ability to master literacy in the era of globalization is very important. Especially related to digital literacy. The Merdeka Curriculum, in an effort to improve the quality of education, requires habituation and integration of literacy in classroom learning. Teachers, as part of Human Resources, who prepare future generations, need to be equipped with digital literacy skills so that they can guide their students to get used to applying literacy. Thus, it can be integrated into classroom learning. This is in accordance with the results of the World Economic Forum, which found that mastery of six basic literacy skills, one of which is digital literacy, is very important for students and the entire global community. Four types of digital literacy, namely digital safety, digital ethics, digital culture, and digital skills, are very useful in the era of globalization.

According to the results of preliminary research conducted, developing a community-based training model through the collaboration of various stakeholders is

needed. The above training model has a good impact on the literacy skills of teachers who teach using the Merdeka curriculum. From the results of the questionnaire given to participants who completed the training, it was proven that there was an effect of understanding literacy (literacy in general, types of literacy, literacy competencies, and the school literacy movement) on literacy bias in the classroom, as evidenced by the results of a correlation analysis of 0.815, which means that it has an influence of 81.5%. For literacy integration, the results of the analysis obtained a correlation of 0.735. This means that 73.5% of literacy understanding (literacy in general, types of literacy, literacy competencies, and the school literacy movement) influences literacy integration in classroom learning.

Participants who have attended the training are required to disseminate the results to at least one teacher in their school as a condition of obtaining a certificate. With this kind of diffusion, the training model has a broad impact on teachers' ability to master digital literacy, especially in supporting the Merdeka curriculum. With the diffusion to other teachers and habituation followed by literacy integration in the classroom, it is hoped that it will have an impact on students' digital literacy skills, which will be useful in their future journeys.

The research conducted still has many shortcomings, especially looking for a broader impact on students whose teachers participate in training and dissemination. In the future, it is recommended that research be conducted more comprehensively, from creating a model to implementing the model to assessing the impact on trainees and students whose teachers participate in the training.

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# SIMBOLISME DAN KEPENTINGAN BERBEDAK PENGANTIN DALAM TRADISI PERNIKAHAN BRUNEI

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## EXTENDED ABSTRACT

## ABSTRAK

Berbagai tradisi dan adat istiadat yang kaya menjadi ciri unik dalam pernikahan di Brunei. Salah satu aspek yang penting dalam pernikahan ini ialah "berbedak pengantin," suatu upacara yang memuatkan simbolisme dan makna mendalam. Upacara ini melibatkan penggunaan bedak kunyit yang dicampur dengan air mawar untuk menghias pasangan pengantin dalam perayaan pernikahan mereka. Penelitian ini bertujuan untuk mengkaji simbolisme dan kepentingan berbedak pengantin dalam tradisi pernikahan Brunei. Melalui analisis makna simbolis, terutama pada maksud warna kunyit dan air mawar, didapati bahawa berbedak pengantin mencerminkan keanggunan, kecantikan, dan keberuntungan bagi pasangan pengantin. Selain itu, penelitian ini menerokai peranan sosial dan budaya berbedak pengantin dalam masyarakat Brunei, sebagai cerminan nilai-nilai dan norma-norma yang dijunjung

tinggi oleh masyarakat setempat. Didapati juga terdapat perbezaan dalam pelaksanaan berbedak pengantin antara wilayah-wilayah atau kelompok etnik di Brunei, menunjukkan kekayaan budaya negara ini. Penelitian ini turut menyelidiki persepsi dan pandangan masyarakat Brunei terhadap berbedak pengantin, dan menemukan bahawa upacara ini masih relevan dan memegang peranan penting dalam konteks masyarakat modern. Berbedak pengantin turut memainkan peranan penting dalam mempertahankan identiti budaya Brunei dan memperkukuhkan jati diri masyarakat tempatan. Dengan pemahaman yang lebih mendalam tentang simbolisme dan kepentingan berbedak pengantin, penelitian ini menggali warisan budaya yang kaya dan unik di Brunei. Terdapat juga potensi berbedak pengantin sebagai daya tarik pelancongan budaya, sebagai saluran untuk memperkenalkan budaya Brunei di peringkat antarabangsa. Penelitian ini menegaskan tujuan mulia dalam mengenali dan memperkuat makna mendalam berbedak pengantin dalam tradisi pernikahan Brunei. Diharapkan bahwa hasil penelitian konsepsual ini akan menyumbang kepada pelestarian dan penghargaan atas warisan budaya yang bernilai bagi masa depan generasi Brunei.

Kata Kunci: Adat Berbedak Pengantin, Budaya, Perkahwinan Melayu Brunei

## Permasalahan Kajian

Penelitian tentang Adat Berbedak Pengantin dalam masyarakat Brunei merupakan bidang kajian yang menarik dan bermakna. Adat ini memegang peranan penting dalam membentuk identiti budaya dan perpaduan sosial di kalangan masyarakat Brunei. Dalam kajian ini, pengaruh Adat Berbedak Pengantin terhadap kekuatan identiti dan kesatuan sebagai masyarakat Brunei akan di kaji. Hasil sorotan

literatur yang dilakukan juga menunjukkan aspek budaya masyarakat Brunei dalam kajian berkait dengan adat berbedak pengantin tidak pernah dikaji secara khusus dan mendalam. Terdapat satu kajian yang dilakukan oleh Nur E'zzati Rasyidah binti Haji Abdul Samad (2019), tetapi kajian ini hanya sekadar menyentuh tentang upacara pernikahan tradisional Melayu di Brunei: kelangsungan dan perubahan.

Kajian konsepsual ini akan menelusuri peranan keluarga dan komuniti dalam pelaksanaan Adat Berbedak Pengantin serta pengaruhnya terhadap pengantin dan keluarga dari segi emosi, identiti diri, dan hubungan sosial. Kajian ini akan menganalisis impak budaya yang mungkin timbul dari upacara ini, serta bagaimana adat ini mempengaruhi ikatan keluarga dan masyarakat secara keseluruhan.

Melalui pendekatan kualitatif dan kuantitatif, kajian ini akan mengumpulkan data dari responden yang terlibat dalam upacara ini dan anggota masyarakat Brunei lainnya. Survei, wawancara, dan analisis dokumen akan menjadi alat untuk menggali informasi yang mendalam tentang adat berbedak pengantin dan implikasinya pada identiti budaya dan perpaduan sosial.

Hasil dari penelitian ini diharapkan dapat memberikan wawasan yang berharga bagi masyarakat Brunei dan juga dapat menyumbang pada pelestarian budaya dan tradisi yang kaya dalam era modern yang cepat berubah. Kajian konsepsual ini diharapkan dapat memberikan pemahaman yang lebih mendalam tentang makna dan nilai-nilai yang terkandung dalam Adat Berbedak Pengantin, dan bagaimana tradisi ini tetap relevan dalam konteks kehidupan masyarakat Brunei yang semakin maju.

## Kajian Lepas

## Negara Brunei Darussalam

Masyarakat Melayu Brunei ialah kelompok etnik utama yang mendiami Negara Brunei Darussalam. Masyarakat Melayu Brunei mempunyai budaya dan tradisi yang unik, yang merupakan cirinya yang paling menyerlah dalam kehidupan mereka. Terletak di utara Pulau Kalimantan, Brunei adalah salah satu negara kecil berdaulat. Ia mempunyai kira-kira 5.765 km2. 97% penduduknya tinggal di bahagian Barat, yang lebih besar. Kesultanan Brunei, merupakan dinasti Muslim tertua di rantau ini dan mempunyai sejarah lebih dari 600 tahun. Brunei telah wujud sejak abad ke-6 dan merupakan kerajaan tertua di tanah Melayu. Daerah Brunei menjadi salah satu pelabuhan utama dan pusat perdagangan untuk orang Cina, Arab dan India pada masa itu. Dalam beberapa dokumen sejarah, orang Cina menyebut Brunei dengan pelbagai perkataan, seperti Po-li, Po-lo, Poni atau Puni, dan Bunlai. Dalam tulisan Arab, Brunei biasanya dirujuk sebagai Dzabaj atau Randj. Semasa menyebut nama-nama ini, ia boleh dianggap sebagai zaman

**Perkahwinan Masyarakat Melayu Brunei**

Perkahwinan mewujudkan ikatan antara dua keluarga. Dari segi syarak, ia merupakan perjanjian yang diikat melalui akad nikah dan sah di sisi agama. Setiap pasangan yang ingin berkahwin mesti melalui beberapa upacara adat istiadat perkahwinan kerana majlis perkahwinan dalam masyarakat Melayu biasanya diadakan dengan meriah dan mewah.

Perkahwinan merupakan salah satu tahap kehidupan yang penting bagi masyarakat di seluruh dunia. Bagi masyarakat Melayu, perkahwinan ialah pelengkap kehidupan seseorang (Sabariah Abdullah,2005). Perkahwinan atau mencari jodoh adalah naluri manusia semula jadi, dan pertemuan jodoh adalah titik persetujuan keluarga lelaki dan perempuan. Kerana nilai perkahwinan adalah nilai agama dan

budaya, ia melibatkan semua keluarga. Perkahwinan adalah sebahagian daripada kebudayaan, jadi ia mengekalkan adat resam, nilai dan moral bangsa (Metussin, 2023).

Upacara perkahwinan tradisional Melayu Brunei terdiri daripada 10 majlis iaitu Majlis Berjarum-jarum, Majlis Menghantar Tanda Pertunangan, Majlis Menghantar Berian, Majlis Berbedak Siang, Majlis Akad Nikah, Majlis Malam Berbedak, Majlis Berinai, Majlis Bersanding, Majlis Berambil-ambilan, dan Majlis Mulih 3 atau 7 hari. Majlis-majlis ini menggambarkan tiga elemen penting yang membentuk adat istiadat Melayu Brunei iaitu: ideologi atau ekspresi, bahan-bahan budaya, dan etika dan adab yang betul dalam menjalankan setiap majlis tersebut. Dari sudut pandangan agama Islam, klimaks proses sesuatu perkahwinan itu adalah upacara akad nikah. Akad nikah merupakan gerbang bagi kehidupan berumahtangga. Sesuatu yang sebelumnya diharamkan akan menjadi halal setelah akad nikah. Dalam bahasa Melayu, "nikah" adalah istilah yang digunakan untuk merujuk pada tindakan atau proses pernikahan. Istilah ini digunakan untuk menggambarkan momen di mana dua orang atau lebih (dalam beberapa tradisi) secara sah dan rasmi bergabung sebagai pasangan hidup. Nikah mencakupi semua proses dari persiapan, upacara, hingga penetapan pernikahan tersebut sebagai sah menurut hukum dan adat istiadat yang berlaku dalam masyarakat.

**Definisi Adat**

Adat biasanya merujuk kepada tindakan atau perlakuan menurut yang biasa dalam komuniti atau bangsa yang berkaitan. Menurut Kamus Dewan, adat bermakna undang-undang yang telah ditetapkan secara tradisi dalam masyarakat sehingga menjadi norma dan piawaian yang mesti dipatuhi. Memandangkan istiadat juga

merujuk kepada pelbagai jenis adat yang mengikutinya. Adat memiliki peranan penting dalam membentuk identiti suatu kelompok dan memperkuat hubungan sosial antara anggota masyarakat. Adat juga menjadi cara untuk menjaga nilai-nilai dan norma-norma yang dijunjung tinggi dalam sebuah budaya, serta melestarikan tradisi warisan nenek moyang untuk generasi mendatang. Menurut Othman (2018), Brunei Darussalam melihat dirinya sebagai "Negara Zikir, Negara Beradat" yang menegaskan kedudukan dan kepentingan adat resam dalam masyarakat Brunei sebagai sebahagian daripada imej dan budaya negara. Adat istiadat adalah penting dalam menentukan masyarakat Melayu Brunei dari segi identiti, batas, dan moralnya. Aziz Deraman pula menyatakan, adat itu adalah satu perkara baharu yang lahirnya mengikut cara berfikir sesuatu bangsa. Selain itu, peraturan yang dijelmakan melalui adat resam, lembaga, tradisi, nilai budaya, kepercayaan dan peralatan budaya telah dapat menggambarkan sesuatu pernyataan kehidupan manusia. (Aziz Deraman, 2005). Dalam banyak masyarakat tradisional, adat memiliki peranan yang kuat dalam mengatur tata kelola sosial dan mengatur hubungan antar individu dalam komuniti. Meskipun dalam era modern banyak masyarakat telah mengalami perubahan dan pengaruh dari globalisasi, adat masih tetap dihormati dan dipraktikkan dalam berbagai aspek kehidupan sebagai sebahagian dari identiti dan warisan budaya yang kaya.

**Pengangun**

"Pengangun" adalah istilah Melayu yang merujuk kepada seorang pengiring perkahwinan; seorang wanita yang berusia empat puluh tahun ke atas dengan pengetahuan spiritual, yang memiliki kemampuan untuk melindungi dirinya sendiri dan pasangan yang akan menikah (pengantin wanita dan pengantin lelaki) dari ilmu hitam (sihir) (Hakim , 2014). Rozy Susilawati (2001) juga menyatakan bahawa

pengangun merupakan tokoh penting dalam majlis perkahwinan dan tanpa kehadiran mereka, majlis-majlis tersebut akan tidak lengkap.Dalam konteks pemodenan, pengangun melihat diri mereka sebagai kurang penting dan kurang diperlukan semasa perkahwinan disebabkan perubahan sikap generasi muda. Generasi muda di Brunei cenderung melihat perkhidmatan pengangun sebagai bertentangan dengan ajaran Islam dan sebagai sebahagian daripada adat Melayu Brunei.

Peranan utama pengangun adalah memberikan 'cahaya' atau menaikkan seri wajah kepada pengantin wanita semasa perkahwinan. Ketersediaan perkhidmatan moden seperti pakar rambut dan jurusolek telah mengurangkan kepentingan pengangun semasa perkahwinan kerana jurusolek dapat memberikan 'cahaya' kepada pengantin wanita tanpa bantuan pengangun. Tugas Pengangun pada masa dahulu adalah memainkan peranan utama dalam upacara Malam Berbedak, Malam Berpacar dan Ambil-Ambilan. Perkhidmatan yang ditawarkan oleh pengangun tidak terhad kepada pengantin wanita sahaja, pengantin lelaki juga perlu mempunyai seorang pengangun. Ini kerana peranan seorang ibu, yang bertujuan melindungi dan mendidik anaknya tentang perkahwinan, digantikan oleh pengangun. Oleh itu, ini adalah saat di mana ibu menyerahkan anak perempuannya atau anak lelakinya kepada pengangun dengan kepercayaan perlindungan bagi kehidupan anaknya (Hakim, 2014). Selain itu, seorang pengangun sering dilihat dan dianggap sebagai indung (ibu) yang memberi panduan terutamanya kepada pengantin wanita tentang cara yang betul dalam berkhidmat kepada suami. Ibu, seperti yang dinyatakan oleh Susan Sered (1994) 'memahami cinta, hubungan, dan spiritualiti dengan cara yang tidak dimengerti oleh lelaki'. Susan Sered (1994) juga menyatakan bahawa menjadi seorang ibu memberi

kekuatan kepada wanita dan dalam beberapa budaya, dipercayai memberikan pemahaman spiritual yang mendalam kepada wanita.

Seorang pengangun yang tulen menjalankan peranannya berdasarkan ikhlas dan tidak ada bayaran yang diberikan sebagai balasan kerana peranannya adalah untuk mendampingi dan melindungi pengantin daripada bahaya. Pengangun yang didefinisikan sebagai "tradisional" dan sah menjalankan peranannya dengan sukarela tetapi pengangun "moden" melakukan sebaliknya (Hakim, 2014). Ini jelas menunjukkan peranan pengangun itu telah bertukar niat dan berkemungkinan ada pengangun yang menjalankan perniagaan dari modus operindi yang sama.

**Ritual Perkahwinan**

Ritual pada dasarnya adalah medium komunikasi seperti yang diperdebatkan oleh Edmund Leach (1968). Upacara perkahwinan tidak hanya mencerminkan adat Melayu, yang lebih penting ialah spiritualiti pengangun dapat dianalisis melalui jampi yang digunakan sebagai medium untuk berkomunikasi dengan makhluk ghaib atau pencipta alam semesta. Jampi lama melibatkan pengucapan nama-nama yang tidak familiar dan oleh itu, penggunanya harus percaya pada jampi tersebut, supaya ia dapat memberikan kesan. Kiplli Bulat (1995) berpendapat bahawa pengangun memainkan peranan penting dalam majlis perkahwinan kerana perkara-perkara yang tidak diingini pernah berlaku dan oleh itu, sebagai langkah berjaga-jaga, seseorang dengan kekuatan spiritual diperlukan semasa perkahwinan. Adalah menjadi adat Melayu Brunei untuk seorang pengangun dilantik sebulan sebelum majlis istiadat perkahwinan Brunei bermula.

Pengangun bermula dengan Istiadat Malam Berjaga-jaga dengan majlis Berbedak Siang atau Berbedak Mandi. Kipli Bulat (1997) menyatakan bahawa majlis

ini berlangsung seminggu sebelum majlis perkahwinan sebenar (bersanding). Tumpuan majlis Berbedak Mandi adalah penyapuan serbuk wangi (badak lulut) yang telah dicampur dengan air mawar. Badak lulut terdiri daripada dua belas ramuan (air mulih, bunga mawar, bunga gambir, cakur, tamu lawak, tamu kunci, tamu kuning, tamu putih, banglai, daun nilam, pualam, dan kayu cendana) yang telah dikeringkan dan dicampurkan bersama. Majlis ini biasanya berlangsung pada pagi Jumaat apabila pengantin wanita atau pengantin lelaki duduk di atas bantal untuk majlis berbedak mandi. Ahli keluarga terdekat kemudian dijemput untuk menyapu bedak lulut di tapak tangan pengantin wanita atau pengantin lelaki.

**Adat Berbedak Pengantin**

Adat berbedak pengantin adalah salah satu tradisi penting dalam pernikahan di Brunei. Berbedak pengantin adalah upacara di mana pasangan pengantin dihiasi dengan bedak kunyit yang dicampur dengan air mawar atau air bunga lainnya. Upacara ini bertujuan untuk mempersiapkan kedua mempelai dengan tampilan khusus yang cantik dan anggun dalam rangka merayakan pernikahan mereka. Upacara berbedak pengantin dianggap sangat sakral dan memiliki makna simbolis yang mendalam dalam tradisi pernikahan Brunei. Warna kuning keemasan dari bedak kunyit melambangkan keanggunan, kecantikan, dan keceriaan dalam tradisi Brunei. Selain itu, berbedak pengantin juga dipercayai sebagai simbol keberuntungan bagi pasangan pengantin yang memulai kehidupan bersama. Pelaksanaan adat berbedak pengantin biasanya dilakukan di kediaman pengantin wanita atau tempat pernikahan pada pagi hari sebelum perayaan pernikahan dimulai. Pada saat itu, keluarga dan kerabat dekat dari kedua belah pihak berkumpul untuk menyaksikan dan bersama dalam upacara ini. Upacara berbedak pengantin merupakan momen yang penuh adat, musik

tradisional, dan doa-doa untuk membawa keberkahan pada pasangan pengantin. Anggota keluarga yang lebih tua atau orang yang dianggap memiliki status sosial tinggi akan menjadi pelaksana upacara dan akan mengoleskan bedak kunyit pada wajah, leher, tangan, dan kaki kedua mempelai. Adat berbedak pengantin adalah salah satu aspek penting dalam budaya pernikahan Brunei yang dijaga dan dipertahankan hingga saat ini. Upacara ini menjadi simbol kehormatan, penghargaan, dan keanggunan dalam momen bersejarah pernikahan bagi pasangan pengantin dan keluarga mereka.

Kesimpulannya, adat berbedak pengantin adalah amalan budaya tradisional di Brunei yang penting dalam upacara perkahwinan. Asal-usul ritual ini boleh ditelusuri kembali ke budaya Melayu, di mana ia diyakini membawa berkat dan keberuntungan kepada pasangan pengantin baru. Seiring berjalannya waktu, Adat Berbedak Pengantin telah berkembang dan menyesuaikan diri dengan zaman moden, menggabungkan elemen baru sambil tetap memelihara inti tradisinya. Tradisi budaya ini berfungsi sebagai cara untuk menghormati dan merayakan warisan Melayu, menggalakkan perasaan identiti dan bersatu di kalangan masyarakatnya. Kepentingan budaya dan amalan berkekalan Adat Berbedak Pengantin menonjolkan kekayaan tradisi yang membentuk landskap budaya Brunei itu sendiri.

**Majlis Berbedak Siang**

Majlis Berbedak Siang adalah salah satu dari sepuluh majlis dalam upacara perkahwinan tradisional Melayu Brunei. Majlis ini merupakan prosesi di mana pasangan pengantin dihias dengan bedak kunyit pada siang hari sebagai persiapan untuk acara pernikahan yang akan datang. Dalam majlis ini menandakan bahawa kedua-dua pengantin telah berjaya memasuki fasa 'Berjaga jaga' yang sering kali

menandakan permulaan minggu pantang larang mereka (NER, 2019). Majlis Berbedak Siang biasanya berlangsung pada hari sebelum acara pernikahan utama atau sehari sebelum Majlis Bersanding. Selama majlis ini, pengantin wanita dan pengantin lelaki akan dihias dengan bedak kunyit yang dicampur dengan air mawar atau air bunga lainnya oleh anggota keluarga dan kerabat dekat. Pengantin wanita akan diberi hiasan bedak kunyit pada wajah, leher, tangan, dan kaki, sementara pengantin lelaki biasanya hanya dihias pada wajahnya. Majlis Berbedak Siang menjadi momen penting untuk menghormati dan mempersiapkan kedua mempelai sebelum acara pernikahan. Ini juga merupakan bagian dari rangkaian tradisi pernikahan Melayu Brunei yang sarat dengan simbolisme dan makna mendalam. Melalui Majlis Berbedak Siang, pasangan pengantin dan keluarga mereka merayakan kecantikan dan keanggunan pengantin wanita serta mengharapkan berkat dan kebahagiaan dalam pernikahan mereka yang akan datang.

**Majlis Malam Berbedak**

Konsep serupa seperti Majlis Berbedak Siang digunakan dalam majlis ini. Perbezaannya ialah majlis ini biasanya diadakan pada waktu malam manakala Majlis Berbedak Siang biasanya diadakan pada waktu tengah hari. Perbezaan lainnya ialah pengantin wanita atau pengantin lelaki akan berpakaian dengan pakaian tradisional Melayu Brunei dan mengenakan perhiasan yang terbuat daripada emas seperti Tajok, Karang Tembusa, Ayam-ayam, Sisir, Kancing, dan banyak lagi (NER 2019). Kebanyakan pengantin wanita akan mengenakan pakaian berwarna merah dan lazimnya wajah mereka akan ditutup dengan sehelai kain sehingga mereka sampai di atas pentas pelaminan. Pengantin wanita atau pengantin lelaki akan diminta duduk di atas pentas semasa majlis berbedak berlaku.

**Simbolisme Warna Bedak Dan Air Mawar**

Dalam adat berbedak pengantin di Brunei, warna bedak kunyit yang digunakan, serta air mawar yang dicampurkan untuk menciptakan pes bedak tersebut, memiliki simbolisme dan makna mendalam. Menurut NER, 2019, melalui temubual bersama masyarakat tua di Brunei, untuk majlis malam berbedak, akan disediakan 7 warna bedak dan Bunga Rampai. 7 warna bedak ini melambangkan dan mewakili 7 lapisan langit, bumi, dan pelangi. Upacara ini lazimnya dimulakan oleh orang tua keluarga dan diikuti oleh para tetamu yang lain. Proses ini dipantau rapi dari segi adabnya dimana penggunaan jari manis akan digunakan untuk mengoles bedak sebanyak 7 warna pada dahi pengantin lelaki dan perempuan dipercayai bagi menaikkan seri muka mempelai. Kemudian, Bunga Rampai akan ditabur di seluruh tubuh pengantin wanita atau pengantin lelaki yang melambangkan bentuk berkat dan akhir dari proses pengbedakan. Pengantin wanita atau pengantin lelaki kemudian akan dibawa kembali ke bilik mereka. Khususnya untuk pengantin wanita, pengagun akan melanjutkan untuk melaksanakan fasa 'Adat Masuk Pengagunan' di mana; pengantin wanita akan berada di tengah-tengah 'orang tua keluarga'. Sebatang lilin akan dinyalakan oleh pengagun dan akan disalurkan kepada ahli keluarga yang berada di sekeliling pengantin wanita. Kemudian, pengantin wanita akan diminta untuk meletakkan tangan di sekeliling pengagun dan dipimpin mengelilingi katil selama kira-kira 3 kali. Untuk menandakan akhir majlis, pengantin wanita kemudian diminta untuk meniup lilin yang menyala.

## Metodologi Penyelidikan

Kajian akan dilakukan dengan menghadiri majlis perkahwinan ke dua buah rumah yang di daerah Bandar Seri Begawan dan Serian. Dua responden yang juga ahli keluarga tertua yang akan ditemu bual bagi kajian ini mempunyai pengalaman amalan istiadat berbedak pengantin lebih kurang 20 dan 30 tahun. Perolehan kajian ini adalah untuk mengenal pasti sama ada amalan berbedak pengantin masih relevan di Brunei dan apakah jenis bahan yang digunakan semasa upacara. Selain itu, beberapa buah buku, kajian dan kertas kerja yang berkaitan dengan adat istiadat perkahwinan melayu brunei turut diteliti bagi melengkapkan kajian ini. Hal ini akan dikupas dalam sub topik berikutnya

## Rumusan

Upacara perkahwinan tradisional Melayu di Brunei telah menjadi bagian integral dari budaya dan warisan masyarakat Brunei selama berabad-abad. Penghormatan terhadap adat istiadat ini memainkan peranan penting dalam memperkuat identiti budaya dan mempromosikan perpaduan sosial di kalangan rakyat Brunei. Namun, dalam era modern yang cepat berubah, banyak tradisi dan praktik adat berubah dan beradaptasi dengan perkembangan zaman. Faktor-faktor seperti globalisasi, modernisasi, dan pengaruh budaya luar dapat mempengaruhi bagaimana upacara perkahwinan tradisional Melayu dijalankan di Brunei. Oleh kerana itu, penting untuk memahami bagaimana kesinambungan adat istiadat ini dipertahankan dan bagaimana perubahan tersebut membentuk wajah pernikahan tradisional di era moden Dengan menganalisis data dari responden yang terlibat dalam upacara perkahwinan tradisional Melayu di Brunei dan melakukan kajian literatur yang relevan, kajian ini akan

memberikan gambaran yang komprehensif tentang kelangsungan dan perubahan dalam upacara perkahwinan Melayu di Brunei. Hasil penelitian ini diharapkan dapat memberikan wawasan yang berharga bagi masyarakat Brunei dan juga dapat berkontribusi pada pelestarian budaya dan tradisi yang kaya dalam era modern yang penuh cabaran.

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# IBAN WOMEN DEVELOPMENT AND EMPOWERMENT: ROLE OF IBAN WOMEN AS A BREADWINNER

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## EXTENDED ABSTRACT

Because living expenses have increased, women are now also expected to contribute financially to the family, whether through part-time employment or the workforce. One of the most popular ways for working women and full-time housewife to supplement their income is through side-income earning. In Sarawak, Iban ethnic women engage in side-income activities for daily needs and extra income. By identifying the different kinds of side-income activities and the obstacles that stand in the way of them, this study explores the role of Iban women as breadwinners who engage in side-income activities in Sarawak. It then suggests appropriate training or programs to assist and promote these women's involvement in side-income activities. A descriptive research design was utilised in the study, and 325 Iban women answered

the survey. The study's conclusions highlight three primary sources of side income: farming, handicraft manufacturing, and business. However, due to factors like budgetary limitations, issues with marketing and promotion, and specialised expertise and abilities, the respondents require assistance in carrying out side-income activities. A significant portion of responders noted three recommendations based on the concerns identified: offering financial assistance, offering business and entrepreneurship courses, and offering marketing and promotional support. Only some training or programs may be able to meet the demands of Iban women, so it is important to choose the right ones. Training and programs should also be need-driven. Iban women's side jobs support their families, advance Iban society, and promote the advancement and empowerment of Iban women in Sarawak.

Keywords: Breadwinner, Dual-Income Household, Ethnicity, Iban Women

## Literature Review

Women who become breadwinners participate side-income jobs in the informal sector in addition to being employed as workforce members in the formal sector. In addition to not requiring a high level of education or expertise, the informal sector is adaptable and fits well with the "demand of multiple roles," such as managing houses and earning a living (Ida & Nurliani, 2016). Since the informal economy is a widespread and global phenomenon, around 60% of people on Earth work in it, particularly in emerging and developing nations where it plays a significant role in advanced economies as well (International Monetary Fund, 2021). 9.4% of Malaysian women who were employed did so in the informal sector (Statista, 2021). The majority of people working in the informal sector in Malaysia (2020) had an education level of

Sijil Pelajaran Malaysia (SPM) or less, followed by people who have a degree but no certificate in 2017. Nonetheless, from 2.8% in 2015 to 8.6% in 2017, degree holders' proportion of unpaid work in the informal sector grew. In the meantime, over 40% of informal sector activity took place at home, one third was nomadic (having no fixed location), and 18.1% took place at market or street stalls. This suggests that a growing proportion of educated women are working in the informal economy at this time.

## Research Method

A descriptive study design is being used in this research to characterize the side-income pursuits of Sarawakian Iban women. The research tool is a questionnaire, and data was gathered via in-person interviews and self-administered surveys. For those who could read and comprehend the questionnaire, a self-administered approach was used for illiterate people or those who could not grasp the questions, in-person interviews were held. If the respondents had any queries after completing the questionnaire on their own, the researcher kept an eye on them. Since it is impossible to determine the exact number of Iban women engaged in side-income activities, a convenient sampling technique was used. The researcher found Iban women who were prepared to take part in the poll and were engaged side-income activities. For instance, researchers have visited long houses, talked to hawkers in street stalls and markets, and asked friends and family for recommendations for possible responders. 325 respondents in all have participated in this study.

## Results and Discussions

For this study, 325 respondents were interviewed; Table 1 below lists their locations. All regions of Sarawak are represented among the responders, with the exception of Limbang in the north. Sibu and Bintulu in the central area account for the majority of responders, followed by Miri and Kapit.

**Table 1**

*Number of Respondents*

| Location (Division) | Number of respondents | Percentage (%) |
|---|---|---|
| Betong | 6 | 1.85 |
| Bintulu | 72 | 22.15 |
| Kapit | 46 | 14.15 |
| Kuching | 27 | 8.31 |
| Miri | 51 | 15.69 |
| Mukah | 3 | 0.92 |
| Samarahan | 13 | 4.00 |
| Sarikei | 18 | 5.54 |
| Sibu | 82 | 25.23 |
| Sri Aman | 7 | 2.15 |

A wide range of side jobs were undertaken by Iban women to supplement their income: farming (n =243), handicraft making (n =202), business (n =129), food processing (n =84), tailoring (n =24), babysitting (n =13), crocheting (n =6), and other (n =5) (Table 2). Additional sources of revenue included working part-time, driving for e-hailing, teaching tuition, instructing traditional dance, and providing runner services. Their needs, interests, abilities, and the demands of the market informed the actions. For example, farming serves as both a means of subsistence and a source of revenue. A subset of the participants (n = 129) who were interested in business pursued careers as drop shipping agents. Additionally, individuals with

aptitude for crafting created handcrafted goods for both personal and commercial markets.

**Table 2**

*Side-Income Activities*

| Division (Number of Respondents) | Business (Dropship/ Agents) | Farm-ing | Handicraft | Home-made Foods | Tailor-ing | Baby-Sitter | Cro-chet | Other |
|---|---|---|---|---|---|---|---|---|
| Betong (6) | 4 | 5 | 5 | 3 | 2 | 0 | 2 | 0 |
| Bintulu (72) | 29 | 58 | 52 | 17 | 2 | 3 | 0 | 2 |
| Kapit (46) | 15 | 42 | 41 | 8 | 2 | 2 | 1 | 0 |
| Kuching (27) | 7 | 18 | 17 | 5 | 3 | 0 | 0 | 2 |
| Miri (51) | 22 | 36 | 17 | 9 | 5 | 6 | 0 | 0 |
| Mukah (3) | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 0 |
| Samarahan (13) | 5 | 10 | 10 | 5 | 1 | 0 | 0 | 0 |
| Sarikei (18) | 7 | 15 | 13 | 5 | 0 | 0 | 0 | 0 |
| Sibu (82) | 34 | 51 | 42 | 28 | 9 | 2 | 3 | 1 |
| Sri Aman (7) | 4 | 6 | 3 | 2 | 0 | 0 | 0 | 0 |
| Total 325 respondents | 129 (49.2%) | 243 (74.8%) | 202 (62.2%) | 84 (25.8%) | 24 (7.4%) | 13 (4.0%) | 6 (1.8%) | 5 (1.5%) |

The respondents stated that they faced several difficulties when working on their side projects (see Table 11). The survey found that financial constraints (n=247), problems with marketing and promotion (n=293), and a lack of knowledge and experience in specific fields (n=303) were the three main obstacles to taking side-income activities. Nineteen other respondents brought up issues such as vendor rivalry, halal status (especially for Muslim customers), difficulty meeting demand (which varies over time), health issues, the absence of family members who would check on their children if they were involved in side-income activities, and lack of transportation facilities. Thirty respondents overall claimed they didn't have enough time to pursue side projects.

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# RELATIONSHIP BETWEEN PSYCHOLOGICAL WELL-BEING AND SELF-COMPASSION AMONG SECONDARY SCHOOL TEACHERS IN SARAWAK, MALAYSIA

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## EXTENDED ABSTRACT

## ABSTRACT

This research delves into the intricate dynamics between psychological well-being and self-compassion among secondary school teachers in Sarawak, Malaysia. Understanding how self-compassion influences teachers' psychological well-being is essential in a region characterised by cultural diversity and unique educational challenges. This study explores how self-compassion practices and attitudes can impact educators' psychological well-being. A mixed-methods research approach is adopted to comprehensively investigate this relationship, combining quantitative surveys and qualitative interviews. A diverse sample of secondary school teachers from various districts in Sarawak participated in this study, providing valuable insights

into their self-compassion levels and psychological well-being. In the quantitative phase, standardised scales were employed to measure self-compassion, psychological well-being, and relevant demographic factors. The resulting data underwent rigorous statistical analysis to identify significant correlations between self-compassion and psychological well-being among these educators. The qualitative phase involved conducting semi-structured interviews to gain deeper insights into the teachers' lived experiences with self-compassion and its potential impact on their overall well-being. The thematic analysis uncovered vital themes and patterns emerging from these interviews. The anticipated findings from this research are expected to shed light on the distinctive relationship between self-compassion and psychological well-being within the specific context of Sarawak's secondary school teachers. These insights may have practical implications for educational institutions and policymakers, informing the development of targeted interventions and support systems to enhance teachers' well-being and job satisfaction. In conclusion, this research contributes significantly to the growing body of knowledge concerning the well-being of educators. It emphasises the pivotal role of self-compassion as a potential tool for enhancing the psychological well-being of secondary school teachers in Sarawak. Moreover, it underscores the importance of fostering compassionate and supportive environments within educational institutions, ultimately promoting educators' mental health and resilience and benefiting teachers and students alike.

Keywords: Psychological well-being, Sarawak, secondary school, self-compassion, teachers

## Introduction

This study investigates the complex relationship between psychological well-being and self-compassion among secondary school teachers in Sarawak, Malaysia. The importance of understanding how self-compassion affects teachers' mental health is heightened in this culturally diverse region, which presents distinct educational challenges (Lee et al., 2019). Educators in Malaysia frequently encounter significant workloads, societal pressures, and the necessity to adapt to a variety of student backgrounds, leading to heightened stress and potential burnout (Mok, 2020).

Research indicates that high stress levels among teachers can negatively impact their mental health and job performance (Skaalvik & Skaalvik, 2017). Self-compassion, which involves treating oneself with kindness and understanding during difficult times, has been associated with improved emotional regulation and resilience (Neff, 2003). This research aims to explore how self-compassion can serve as a protective factor against stress and contribute to the overall psychological well-being of educators, ultimately enhancing the teaching and learning experience.

## Literature Review

The exploration of self-compassion's impact on psychological well-being has gained traction in educational research. Defined by Neff (2003), self-compassion encompasses three core elements: self-kindness, recognition of shared humanity, and mindfulness. These components foster a healthier self-view, which reduces negative self-evaluations and enhances emotional resilience (Neff & Germer, 2013). In educational settings, studies indicate that self-compassionate teachers are better equipped to manage stress and avoid burnout, leading to increased job satisfaction

(Roffey, 2012; Sirois, 2015). For example, research by Baker et al. (2020) highlights that educators practicing self-compassion report lower anxiety and depressive symptoms compared to those who do not. This suggests that self-compassion can act as a protective factor against the emotional challenges inherent in teaching.

Moreover, self-compassion is linked to the creation of positive classroom environments. Teachers who demonstrate self-compassion tend to foster more supportive and empathetic relationships with their students, which enhances engagement and learning outcomes (Keng et al., 2011). The relevance of self-compassion in diverse contexts, such as Sarawak, is particularly important, as educators face various social and emotional challenges influenced by their students' backgrounds (Lee et al., 2019).

Despite the expanding research, there is a notable lack of studies focusing specifically on secondary school teachers in Malaysia. Most existing literature has emerged from Western contexts, making it essential to investigate the unique cultural factors that influence self-compassion practices among Malaysian educators. This study aims to address this gap by examining the relationship between self-compassion and psychological well-being within the specific cultural and educational framework of Sarawak.

## Methodology

This study employed a mixed-methods approach that combines quantitative surveys with qualitative interviews to thoroughly examine the relationship between self-compassion and psychological well-being. The quantitative phase utilizes standardized tools, such as the Self-Compassion Scale (Neff, 2003) and the

Psychological Well-Being Scale (PWBS) (Ryff & Keyes, 1995), to measure participants' levels of self-compassion and psychological well-being. The sample consists of secondary school teachers from various districts in Sarawak (Table 1), ensuring representation from diverse socio-economic and ethnic backgrounds.

For the qualitative phase, semi-structured interviews are conducted with a selected group of participants to delve deeper into their experiences related to self-compassion and its influence on their overall well-being. This qualitative approach captures the complexities of teachers' experiences and allows for the emergence of detailed themes (Creswell & Poth, 2018). Thematic analysis (Braun & Clarke, 2006) is employed to identify key patterns from the interview data, offering a richer understanding of self-compassion in the teaching context.

**Results**

The findings of this study are expected to illuminate the specific relationship between self-compassion and psychological well-being among secondary school teachers in Sarawak. Initial analyses are likely to show that higher levels of self-compassion correlate with improved psychological well-being, suggesting that self-compassion can mitigate occupational stress (Gilbert et al., 2011).

The quantitative data revealed significant relationships between self-compassion scores and indicators of psychological health, such as life satisfaction and emotional regulation. The qualitative insights highlighted vital themes and patterns emerging from these interviews. Five themes (Figure 1) have emerged from the current study, namely: (a) seeking help, (b) learning from the experiences of others, (c) identifying self-efficacy, (d) feelings of gratitude and forgiveness, and (e)

identifying self-stress.These anticipated results align with prior research indicating the beneficial effects of self-compassion on educators' mental health (Sirois, 2015).

The result (Table 2) showed a significant relationship between psychological well-being and self-compassion among secondary school teachers in Sarawak.

**Table 1**

*Demographic Characteristics of the Participants*

| Factors | Levels of Factor | | Percentage |
|---|---|---|---|
| **Gender** | Male | 210 | 25.42 |
| | Female | 616 | 74.58 |
| **Age** | 18- to 21-year-old | 1 | 0.12 |
| | 22- to 25-year-old | 36 | 4.36 |
| | 26- to 30-year-old | 144 | 17.43 |
| | 31- to 35-year-old | 191 | 23.12 |
| | 36- to 40-year-old | 168 | 20.34 |
| | 41- to 50-year-old | 213 | 25.79 |
| | 51- to 60-year-old | 73 | 8.84 |
| **Marital Status** | Single | 248 | 30.02 |
| | Married | 549 | 66.46 |
| | Divorced | 25 | 3.03 |
| | Widowed | 4 | 0.48 |
| **Highest Education Level** | Diploma / Certificate | 15 | 1.82 |
| | Bachelor's degree | 706 | 85.47 |

| | | | |
|---|---|---|---|
| | Master's degree | 105 | 12.71 |
| **Service Period** | Less than five years | 198 | 23.97 |
| | 5 to 10 years | 164 | 19.85 |
| | 11 to 15 years | 191 | 23.12 |
| | 16 to 20 years | 115 | 13.92 |
| | More than 20 years | 158 | 19.13 |
| **Origin State** | East Malaysia | 744 | 90.07 |
| | West Malaysia | 82 | 9.93 |
| **Education Streams** | Science | 237 | 28.69 |
| | Art | 514 | 62.23 |
| | Science & Art | 45 | 5.45 |
| | Counsellor / Not involved in teaching | 30 | 3.63 |

**Table 2**

*Correlation of Psychological Well-Being and Self-Compassion*

| **Count of Well-Being Levels (CS1)** | Column Labels | | | |
|---|---|---|---|---|
| **Row Labels** | H | L | N | Grand Total |
| **H** | 109 | 31 | 141 | 281 |
| **L** | 0 | 5 | 2 | 7 |
| **M** | 63 | 134 | 341 | 538 |
| **Grand Total** | 172 | 170 | 484 | 826 |

| | | | | |
|---|---|---|---|---|
| **Row Labels** | H | L | N | Grand Total |
| **H** | 58.5133172 | 57.83293 | 164.65375 | 281 |
| **L** | 1.45762712 | 1.440678 | 4.1016949 | 7 |
| **M** | 112.029056 | 110.72639 | 315.24455 | 538 |
| **Grand Total** | 172 | 170 | 484 | 826 |
| | p-value = | 2.988E-20 | | |
| | Conclusion: | Significant relationship between CS1 and SCS at alpha = 0.05 | | |

**Figure 1**

*Themes Emerged*

## Discussion and Conclusion

The implications of these findings may be substantial for educational institutions and policymakers, as they can guide the development of targeted interventions aimed at enhancing teachers' well-being and job satisfaction. Professional development programs could integrate self-compassion training to help teachers manage stress more effectively (Baker et al., 2020). Schools might also consider establishing mentoring systems to promote peer support and collaboration, fostering resilience and a sense of community among educators (Ingersoll, 2001). Creating a culture of self-compassion within schools could further contribute to a supportive environment that enhances mental health and well-being (Roffey, 2012). By recognizing the importance of self-compassion, educational settings can not only improve teacher well-being but also positively affect student outcomes (Keng et al., 2011). Understanding the cultural context and specific challenges faced by teachers in Sarawak is vital for designing effective interventions tailored to their needs.

In summary, this research makes a meaningful contribution to the understanding of educator well-being. It underscores the significant role of self-compassion as a tool for enhancing psychological well-being among secondary school teachers in Sarawak. By cultivating compassionate and supportive environments within educational institutions, we can promote the mental health and resilience of teachers, which ultimately benefits both educators and their students (Neff & Germer, 2013). Furthermore, the findings emphasize the necessity of integrating self-compassion practices into teacher training and professional development to foster a sustainable educational workforce. Future research should focus on the long-term effects of self-compassion interventions on teachers' well-being and investigate how

cultural factors shape self-compassion practices among educators. Additionally, exploring the impact of self-compassion on teaching efficacy and student performance could further bridge the gap between teacher well-being and educational quality.

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