

Assessing Awareness and Opinions on Anti-Corruption and Integrity Education in Malaysian Secondary School

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Abstract

This study investigates secondary school students' awareness of anti-corruption and their views on anti-corruption and integrity education in Malaysia. Data were collected from 278 students using a structured questionnaire with Likert-scale items measuring awareness, perceived effects, challenges, and solutions related to anti-corruption education. Descriptive statistics were used to analyse demographic characteristics and were visualised through an interactive Power BI dashboard. As the data were not normally distributed, the Mann-Whitney U test and Kruskal-Wallis H test was employed. The results indicate a statistically significant difference in anti-corruption awareness based on participation in school integrity programmes; however, contrary to expectations, students who did not participate reported higher levels of awareness, with the relationship exhibiting a small effect size. No statistically significant differences, with negligible practical effects, were observed across gender, race, year of study, or participation in anti-corruption awareness programmes in relation to awareness. In contrast, students' opinions on the effects, challenges, and solutions of anti-corruption education differed significantly by gender, participation in school integrity programmes, and year of study, although these relationships were characterised by small effect sizes. Overall, the findings suggest that while certain demographic and programme-related factors are statistically relevant, their practical influence remains limited, underscoring the need to reassess the effectiveness of integrity education at the secondary school level.

1. Introduction

Awareness and involvement by the youth constitute a strong line of defence against corruption. Schools especially secondary schools act as a vital platform in instilling ethical reasoning and social responsibility among the young Malaysians. The MACC has also made school-based initiatives like the WAR, which aims at imparting the anti-corruption values at an early age. NACP 20192023 highlights the need in integrity education to create a corrupt-free society that refuses any form of corruption [1].

Corruption is a multisided social, political and economic phenomenon, which all countries experience at different levels. It weakens the institutions of democracy, hinders economic growth, and leads to stabilization problems in government. At a more analytical level, it is possible to define corruption into various types such petty corruption, grand corruption, and systemic corruption, which define specific actors and effects [2]. Petty corruption is the taking of small bribes by low-level officials, and grand corruption is the abuse of power by high-level officials and is commonly embezzlement of large amounts of money or kickbacks. Systemic corruption, in

turn, indicates a structural problem that lies in the bureaucratic and political system, where corruption turns into a routine at the institutional level [3].

Corruption has been a grave issue in Malaysia even though there are initiatives and institutional mechanisms established to fight it. The 1MDB scandal stands as one of the most prominent financial fraud cases in recent history, exposing a complex web of embezzlement, poor corporate governance, and systemic regulatory failures within a state-owned entity ultimately eroding public trust, destabilizing Malaysia's political landscape, and triggering global investigations [4]. The CPI of Transparency International provides that in 2023, Malaysia received 50 out of 100, being placed in the 61st position out of 180 nations, which indicates an average score in the fight against corruption [5]. These scores place Malaysia in the range of countries that have not performed the worst in the world, but still there is a long way to go in terms of fighting the causes and systematic facilitators of corruption.

That being the case, this research undertaking aims at evaluating the efficacy of the integrity programmes and anti-corruption education in Malaysian secondary schools in terms of their application, perceived effects and challenges. The expected contribution of the research is to add valuable insights to the design of more effective, context-sensitive anticorruption education programs by examining how students perceive, experience and react to the currently implemented programs.

It is also indicated that students have problems with ethical dilemma upon leaving secondary school and entering higher education or workplace [6]. Despite various anti-corruption initiatives, the persistence of corrupt practices suggests a disconnect between what is taught in schools and the moral realities of professional life especially considering how some forms of corruption are normalized or rationalized in everyday situations [7]. These results demonstrate that it is urgent to evaluate the content, but also a form and circumstances of providing anti-corruption education.

One of the greatest obstacles to program success can be attributed to non-standardized teaching approaches which are inconsistent. Anti-corruption education is usually taught in without a unified pedagogical approach, allowing differences in interpretation and delivery of the lesson content between schools. As the main actors of such teaching, teachers often do not have enough training, resources, and direction to deliver complex ethical and anti-corruption concepts successfully. This leads to uneven education experiences that are less profound in nature and end up losing the targeted results of the program. It is possible that educators tend to express the lack of preparation to discuss integrity and corruption with students, which implies the necessity of specific professional development and curriculum assistance initiatives.

Although the intentions of the Malaysian government to integrate anti-corruption education into secondary school education is a part of a good policy plan, actual teaching has several barriers that restrain its overall success. Among these obstacles are poor teacher preparation, irregular program implementation, ineffective monitoring tools and lack of alignment between what is taught in schools and the lived reality of students. To overcome these challenges, it is vital to consider in detail the current perception, application and experience of anti-corruption education among teachers and learners. It is only by realistically and evidence-informed perceiving these challenges that policymakers and educators alike may develop appropriate responses to them, thus being able to foster the actual culture of anti-corruption within the Malaysian younger generation.

The aim of this research was to describe the demographics characteristics using descriptive statistics and presenting the results through Power BI. The research also identifies significant differences in level of awareness of anti-corruption based on their demographics. Lastly, the research evaluates the association between the demographics and the impacts, challenges and solutions of anti-corruption.

2. Methodology

2.1 Sampling Method

Determining a sample size is essential for ensuring that the research analysis is statistically significant and representative of the population. Cochran's formula was utilized in this research to determine the required sample size based on the desired precision level, confidence level, and estimated proportion of the attribute within the population [8]. The formula in equation (1) was used to determine sample size, n .

$$n = \frac{z^2 p(1-p)}{e^2} \quad (1)$$

Where z^2 indicates z-score depending on the confidence level chosen, p is the estimated proportion of an attribute that is present in the population, and e represents margin error of confidence interval. This research used the confidence level of 95% and proportion of 0.5, resulting in a sample size of approximately 278 participants in SMK BP students being approached to answer the Microsoft survey form.

This research applied convenience sampling and focused on SMK BP students as the respondents. Convenience sampling is a technique in which units chosen for the sample are the ones the researchers can access quickly [8]. This research has easy access to SMK BP students as the researcher is already familiar with the staff at the school. This reduced the need for substantial planning and travel to reach potential participants.

2.2 Questionnaire

The survey aims to collect valuable insights on anti-corruption by focusing on the awareness and opinions from the SMK BP students. An online survey was conducted using the Microsoft Google Forms.

The questionnaire was divided into three sections. Section A collects the demographic details, including gender, race and year of study. Next, Section B examines the awareness of anti-corruption. It will focus on the knowledge on anti-corruption plus their values. Items in this section will be developed to evaluate the extent to which students are familiar with anti-corruption concepts, including the WAR program, the role of the MACC, and general ethical principles.

Section C assesses opinions on anti-corruption challenges, impacts and solutions. This section will be designed to provide deeper insights into how students perceive the effectiveness and limitations of current educational strategies. Section B and C use a five-point Likert scale to measure agreement with each statement.

2.3 Pilot Study

A pilot study is the primary preliminary phase in research since it analyses the feasibility of methods and procedures before carrying out the full research [9]. A pilot study was conducted with 25 SMK BP students to ensure that participants clearly understood the questions, allowing for any necessary refinement before the main data collection.

2.4 Reliability Test

A test of reliability examines the items' internal consistency within a survey tool, that is, if the items intended to measure an individual construct are uniform in findings. In this research work, Cronbach's alpha was utilized to test the awareness items in Section B and the items in Section C of perceived challenges, impacts, and solutions in the questionnaire.

Cronbach's alpha is the most prevalent reliability coefficient used in the use of Likert-type instruments. It is an indicator of the items in a group correlating highly with each other. A value of above 0.70 is generally sufficient for social sciences research, with values near 0.80 or higher indicating higher reliability [10].

2.5 Mann-Whitney U-Test

The Mann-Whitney U-test is a statistical test that is used to determine if there is any statistically significant difference between two independent samples on an ordinal or continuous dependent variable. It is widely used in social research as well as in education research in situations where the normality assumption is disrupted or where data are measured along the Likert scale [11].

In the current research, using the Mann-Whitney U-test is appropriate to assess the anti-corruption awareness and perception of two sets of people. The test would contrast the median ranks of the two sets, and not the means, thereby making the test less susceptible to the influence of outliers as well as non-normal data [12].

$$\left(\frac{n_A + (n_A + 1)}{2}\right) - R_A \quad \text{and} \quad \left(\frac{n_B + (n_B + 1)}{2}\right) - R_B \quad (2)$$

Where,

n_A is the number of observations in A,

n_B is the number of observations in B,

R_A is the sum of the ranks of group A, and

R_B is the sum of the ranks of group B.

The test gives a U value that is either compared to a critical value or checked for statistical significance in the form of a p -value. A p -value of less than 0.05 would indicate that the groups are statistically different from each other. This is the most appropriate test for ordinal scale data from survey items such as in a 5-point Likert scale.

2.6 Kruskal-Wallis H Test

Kruskal–Wallis H test is one of the non-parametric statistical tests used to determine if there is any statistically significant variation in the median of three or more independent groups. It would be utilized to replace one-way ANOVA in the event of failure to meet normality of data as well as equality of variances [11].

In this research, the Kruskal–Wallis H test is conducted to see if perceptions and awareness of anti-corruption education among different groups of learners vary significantly (e.g., learners of different ages or ethnicities). The test ranks all the data points in the groups and then compares the mean ranks to see if there is an important variation among them.

$$\left(\frac{12}{N(N+1)} \sum_{i=1}^k \frac{R_i^2}{n_i} \right) - 3(N-1) \quad (3)$$

Where N is the sum of the sample sizes,
 n is sample size of group i and,
 R^2 is sum of ranks for group i .

A p-value of less than 0.05 indicates that the median in at least one of the groups differs from the others [13]. The test will not determine which of the groups differ, though, so post hoc pair-wise tests such as Dunn's test with Bonferroni adjustment can be performed [14].

3. Results and Discussion

3.1 Demography of Respondents

The first objective for this research is to study the demographics of respondents using descriptive analysis and displayed as Power BI dashboard visualization. Fig. 1 shows that there were 144 respondents (51.80%) are male while 134 respondents (48.20%) are female. Next is Fig. 2 shows that most of the respondents were Malay students (54.30%) at 151 students. There are 61 respondents (21.90%) from the Chinese race. For the other races such as Iban and Kadazan, there were 37 respondents (13.30%). The least respondents were from the Indian students, which are only 29 respondents (10.40%).

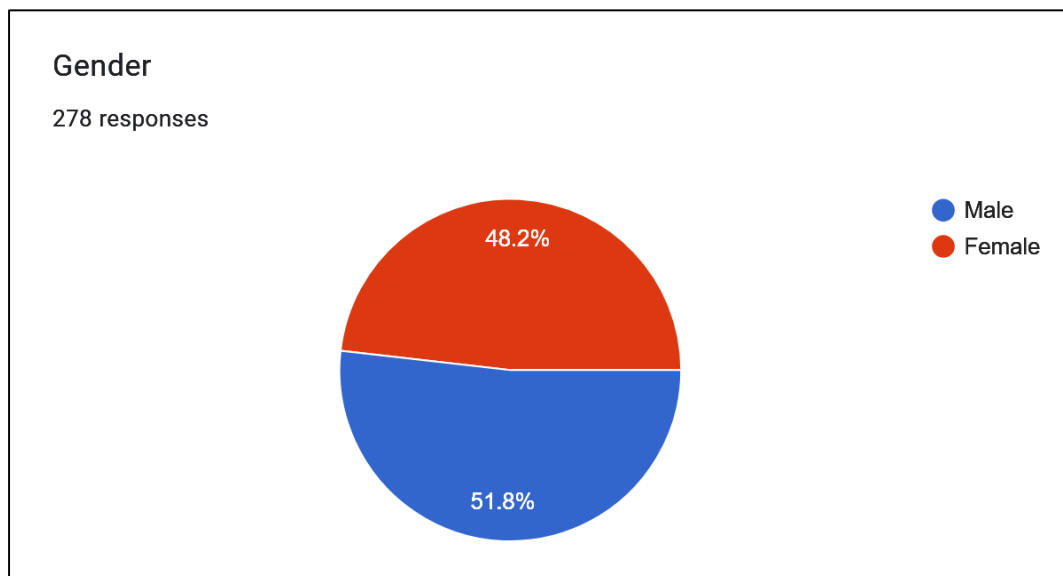
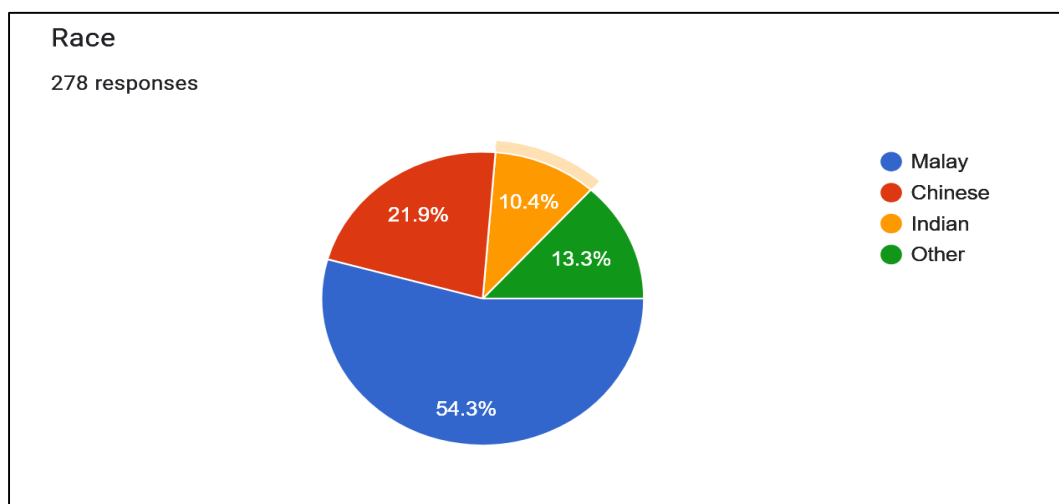
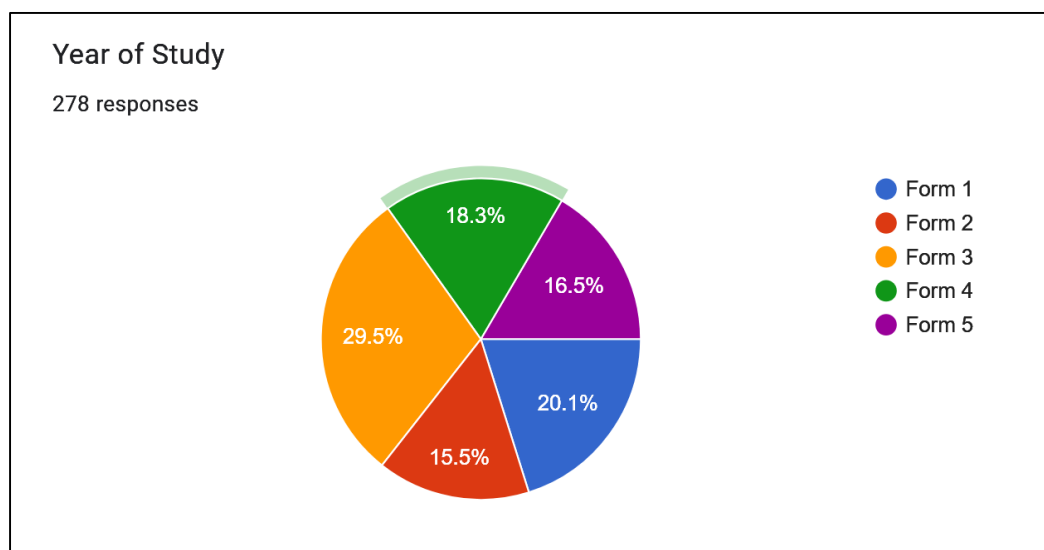
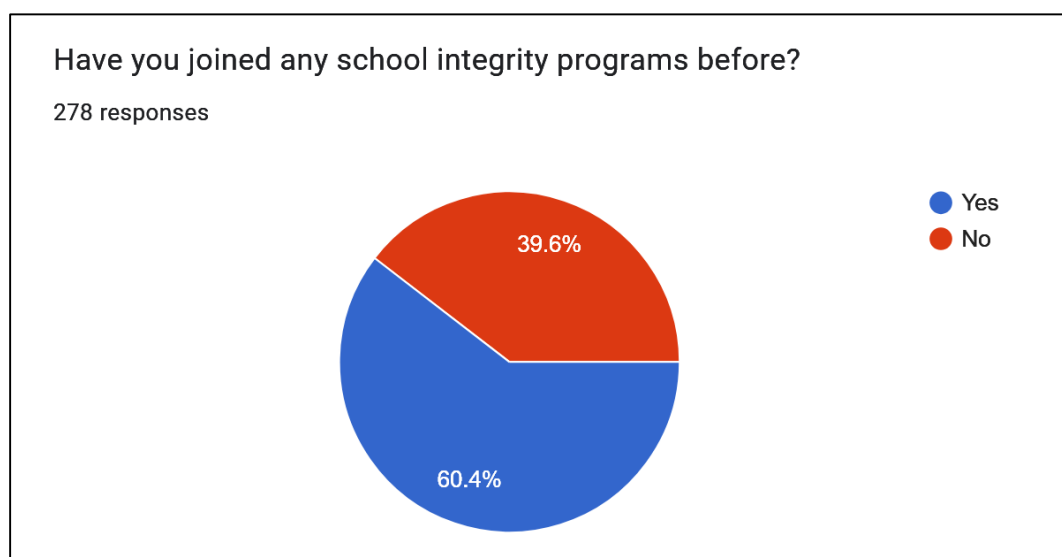


Fig. 1 Gender of Respondents

**Fig. 2** Race of Respondents**Fig. 3** Year of Study of Respondents**Fig. 4** School Integrity Programs of Respondents

In addition, Fig. 3 shows that majority of the respondents are Form 3 students, which are 82 respondents (29.50%). There were 56 respondents (20.10%) that are Form 1 students. The Form 4 students have a total of 51 respondents (18.30%), meanwhile there were a total of 46 respondents who are Form 5 students (16.5%). The least respondents were from the Form 2 students, which are only 43 respondents (15.50%). Fig. 4 shows that 168 of the respondents (60.40%) have joined a school integrity program before, meanwhile 110 of the respondents (39.60%) have never joined a school integrity program. Finally, Fig. 5 shows that 200 of the respondents (71.90%) have joined an anticorruption program outside school before, meanwhile 78 of the respondents (28.10%) have not joined any anti-corruption program outside school.

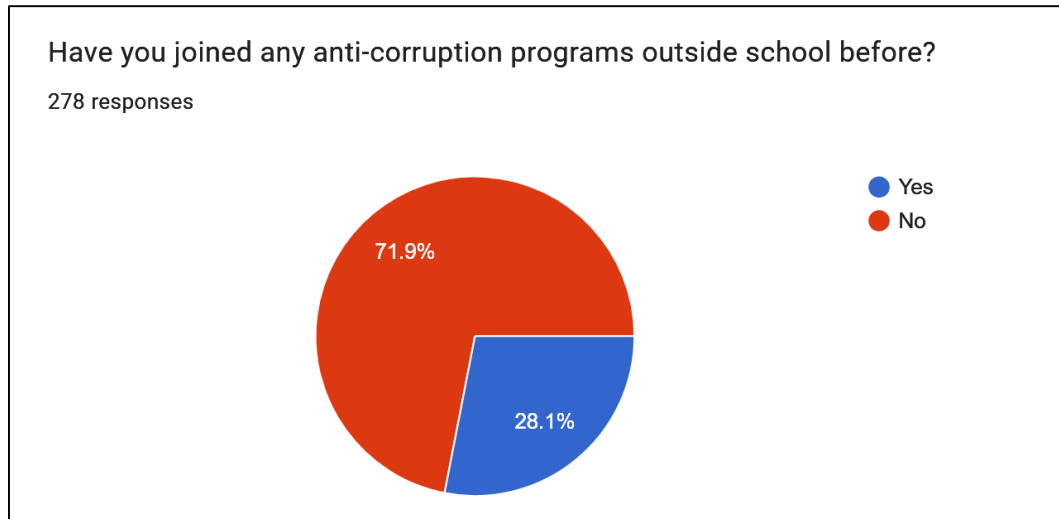


Fig. 5 Anti-Corruption Program of Respondents

3.2 Identify Significant Differences in the Level of Anti-Corruption

Mann-Whitney U test was used to compare the differences in awareness among the two-group variables, namely, gender, school integrity program participation, and participation in anti-corruption awareness programs. Mann-Whitney U test is used when the dependent variable is ordinal or not normally distributed because it is used when two independent groups are being compared in terms of distribution of scores. The p -value of the less than 0.05 value shows that the difference in awareness between the groups is statistically significant. The demographic characteristics of the respondents were summarized in Table 1 and Table 2.

Kruskal-Wallis H test was used to determine the differences in the awareness of the demographic variables that have three or more categories including race and year of study. Kruskal-Wallis test is used to find out the presence of significant statistical differences in the median ranks of multiple independent groups. Like in the Mann-Whitney U test, p -value less than 0.05 will show significant difference. The effect size measures were also estimated to find out whether any differences were significant in practice or not. In the case of Mann-Whitney U test, the effect size r was calculated as the Z -value divided by the square root of the total sample size and in the case of Kruskal-Wallis test, eta-squared (e^2) was calculated as Chi-square, number of groups and sample size.

Table 1 Demographic Profiles for Gender, School Integrity Programs and Anti-Corruption Awareness Programs

	Mean Rank (Male)	Mean Rank (Female)	Z	p -value
Gender	143.44	135.32	-0.843	0.399
	Mean Rank (Yes)	Mean Rank (No)	Z	p -value
School Integrity Programs	124.82	161.59	-3.738	0.001
	Mean Rank (Yes)	Mean Rank (No)	Z	p -value

Anti-Corruption Awareness Programs	134.08	141.62	-0.703	0.482
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Table 2 Demographic Profiles for Race and Year of Study

	Mean Rank (Malay)	Mean Rank (Chinese)	Mean Rank (Indian)	Mean Rank (Other)		Chi-square	df	p-value
Race	144.90	136.51	117.36	133.63		2.665	3	0.446
	Mean Rank (Form 1)	Mean Rank (Form 2)	Mean Rank (Form 3)	Mean Rank (Form 4)	Mean Rank (Form 5)	Chi-square	df	p-value
Year of Study	144.34	145.19	132.70	135.88	144.50	1.292	4	0.863

The Mann-Whitney U test revealed that the difference in the level of anti-corruption awareness between the students of different genders was not statistically significant. Even though the mean rank of male students was a bit higher than female students, it was not statistically significant. The effect size shows that there is a very small practical difference in anti-corruption awareness between genders, which is in favour of the non-significant finding.

The Mann-Whitney U test showed that there is a statistically significant difference in the level of anti-corruption awareness among the students who attended the school integrity programs and those that did not. Students who had not attended school integrity programs had higher mean rank, which means that they were more aware than those who had. Even though the effect size is not large, it indicates a significant practical difference in the levels of awareness among students who attended school integrity programs and the ones that did not attend school integrity programs.

These findings suggested that there was a statistically significant difference in terms of the level of anti-corruption awareness depending on the participation in the school integrity programs, with students who were not involved in the programs showing a higher level of awareness. This is contrary to the expectations and it indicates that formal integrity programs do not necessarily help increase the awareness of the students. The first reason could be that such programs can be very theoretical based and there is little engagement with students. Moreover, students can be exposed to more anti-corruption problems via the informal mediums like social media, news, and peer discussions. The effectiveness of integrity education can also be lowered by program fatigue or mandatory attendance. These results indicate that the design and should be re-assessed.

The Mann-Whitney U test showed no statistically significant difference in anti-corruption awareness between students who participated in anti-corruption awareness programs and those who did not. The difference in mean ranks between the two groups was minimal and not statistically meaningful.

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The Kruskal-Wallis H test indicated that there was no statistically significant difference in students' levels of anti-corruption awareness across different racial groups. Although Malay students recorded the highest mean rank and Indian students recorded the lowest, these differences were not statistically significant.

The Kruskal-Wallis H test showed no statistically significant difference in anti-corruption awareness among students across different years of study. The mean ranks across all year groups were relatively similar, indicating comparable levels of awareness.

3.3 Association Between Demographics Characteristics and Their Opinions

The third aim of the study is to estimate the relationship between the demographic profile and views of SMK BP students on the effects, issues and remedies of anti-corruption education in terms of Mann-Whitney U-test and Kruskal-Wallis H test. In this purpose, non-parametric statistical tests were used because the data on the Likert-scale is ordinal and there is no assumption of normality. The difference between two independent groups was checked by the Mann-Whitney U-test whereas the difference among more than two groups was checked by the Kruskal-Wallis H test.

Table 3 Demographic Profiles for Gender, School Integrity Programs and Anti-Corruption Awareness Programs

	Mean Rank (Male)	Mean Rank (Female)	Z	p -value
Gender	143.44	135.32	-0.843	0.399
	Mean Rank (Yes)	Mean Rank (No)	Z	p -value
School Integrity Programs	147.56	127.38	-2.051	0.040
	Mean Rank (Yes)	Mean Rank (No)	Z	p -value
Anti-Corruption Awareness Programs	139.29	139.58	-0.027	0.979

Table 4 Demographic Profiles for Race and Year of Study

	Mean Rank (Malay)	Mean Rank (Chinese)	Mean Rank (Indian)	Mean Rank (Other)		Chi-square	df	P-value
Race	145.78	116.74	158.20	138.51		7.074	3	0.070
	Mean Rank (Form 1)	Mean Rank (Form 2)	Mean Rank (Form 3)	Mean Rank (Form 4)	Mean Rank (Form 5)	Chi-square	df	P-value
Year of Study	132.45	126.98	132.80	174.85	133.29	12.009	4	0.017

The Mann-Whitney U test demonstrated that there is statistically significant difference in the opinions of students about the effects, problems, and remedies of anti-corruption education in accordance with gender. The mean ranks of the female students were higher compared to the male students meaning that they had more favourable or stronger views about anti-corruption education. The effect size was low meaning that there was a small practical difference in the opinion between male and female students

The difference in opinion of students regarding the participation in school integrity programs was statistically significant. Students who attended school integrity programs had stronger views about the effects, issues, and remedies of anti-corruption education than their counterparts who did not attend school integrity programs. The effect size was low, which implied a small yet significant difference in the perceptions of the students regarding their involvement in school integrity programs

The Mann-Whitney U test showed that there is no statistically significant difference in the views of students on anti-corruption education depending on the attendance of anti-corruption awareness programs. This implies that their involvement in such programs had no significant effect on the perceptions of students regarding the effects, issues, and remedies of anti-corruption education. The effect size was too small, which showed the absence of any practical difference in opinions between the participants and non-participants

The Kruskal-Wallis H test did not reveal any significant difference in the opinion of students regarding anti-corruption education by various racial groups. Even though the mean rank of Indian students was highest and Chinese students had the lowest, these differences were not significant. The effect size was not large, and it means that race did not have a substantial practical impact on the opinions of students about anti-corruption education. The Kruskal-Wallis H statistic indicated that there is a statistically significant difference in the opinions of the students regarding the effects, problems and remedies of anti-corruption education between the various years of study. Form 4 students had the highest opinions based on the mean ranks as compared to other year groups. The effect size was not high, and it indicated that even though the year of study had a statistically significant difference, the practical results of the difference on students' opinions were slight.

3.4 Data Visualisation of Demography of Respondents

Fig. 6 presents a visualization of respondents' demographic characteristics in Power BI. The five demographic categories which are gender, race, years of study, any participation in school-based integrity programs and any

participation in anti-corruption awareness programs are presented using a variety of charts and visuals, including bar charts, pie charts and donut charts.

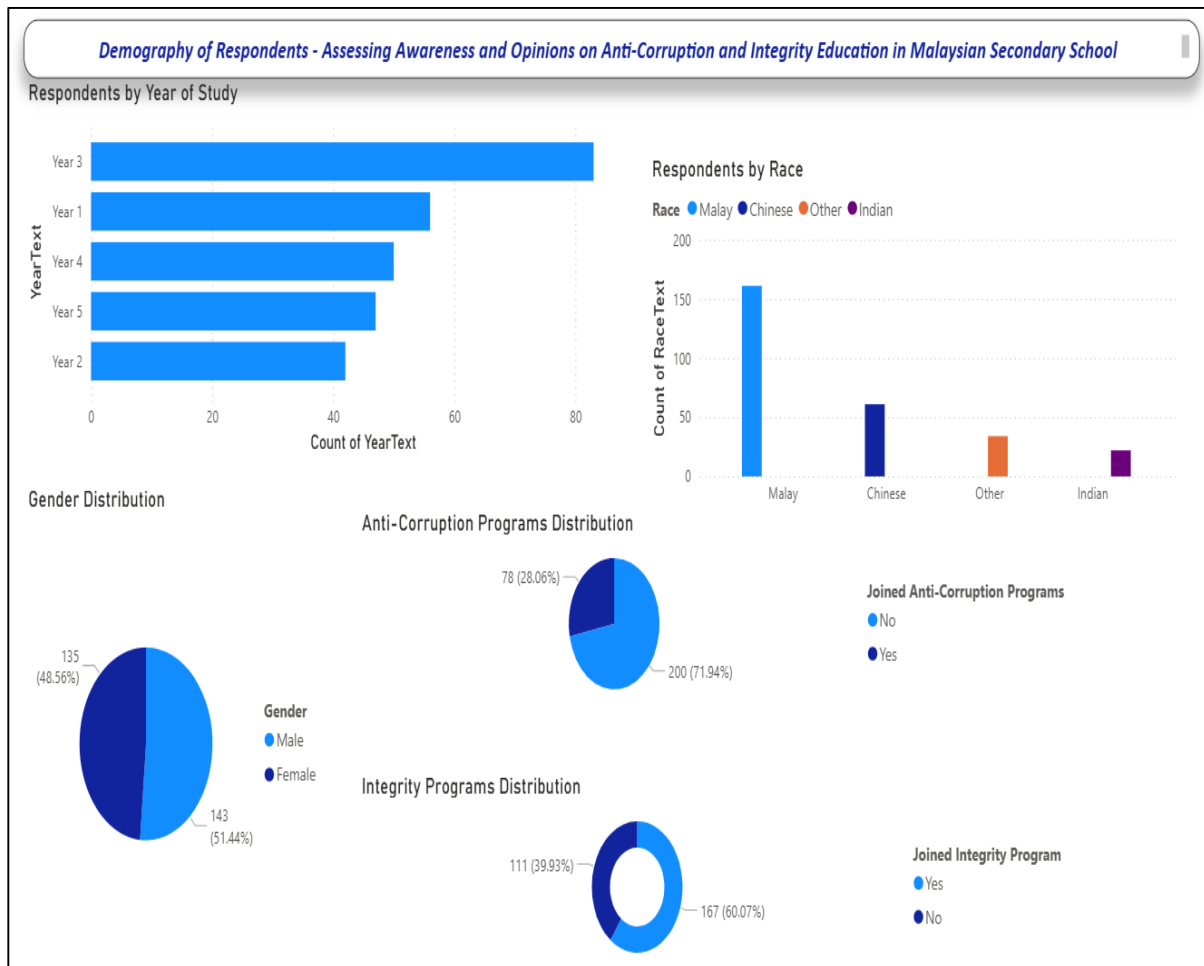


Fig. 6 Respondents' demographic characteristics

4. Conclusion

Since the data were non-parametric, the Mann-Whitney U test, Kruskal-Wallis H test, and Chi-square test were used to examine differences in anti-corruption awareness and students' views based on demographic factors. The findings indicate that participation in school integrity programmes showed statistically significant differences in awareness, while most other demographic factors revealed no significant differences, suggesting a generally uniform level of awareness among students. In terms of perceptions of anti-corruption education, gender and year of study were significantly associated with differences in opinions on its effects, challenges, and solutions, whereas race and participation in awareness programmes were not. Overall, these results highlight the need to design integrity programmes that are both effective in raising awareness and responsive to demographic differences in students' perceptions.

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Conflict of Interest

The authors declare no conflict of interest in the paper's publication.

Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** Muhammad Hazim Mohd Badri, Siti Noor Asyikin Mohd Razali; **data collection:** Muhammad Hazim Mohd Badri; **analysis and interpretation of results:** Muhammad Hazim Mohd Badri, Siti Noor Asyikin Mohd Razali; **draft manuscript preparation:** Muhammad Hazim Mohd Badri, Siti Noor Asyikin Mohd Razali. All authors reviewed the results and approved the final version of the manuscript.

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