

The Impact of Awards on Operational Excellence: An Empirical Study among International Schools in Singapore

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Abstract

Operational excellence is paramount for educational institutions striving to deliver high-quality teaching, research, and support services. Recognising outstanding achievements in operational excellence through awards has become increasingly prevalent in the education sector. The objective of this study was to determine the extent to which awards have impacted the operational excellence of international schools in Singapore. By using purposive sampling method, a total of 421 staff, students, and parents from international schools in Singapore participated in this study. The Descriptive Analysis and Inferential Analysis were administered in analysing the collective and independent relationships and impacts of the five aspects of awards, i.e., types, number, relevancy, value, and prestige and reputation on operational excellence of the institutions. As a result, this study revealed that there was a high level of achievement in terms of awards for operational excellence by the institutions. There were significant differences on the level of operational excellence in accordance with the location where the schools situated, and programmes that the schools offered. However, no significant differences were found for the aspects of category of respondents, gender, and age groups respectively. Correlation Analysis revealed that there was a significant, strong, and positive relationship between awards and operational excellence. The Multiple Regression Analysis showed that awards had significant and strong impact on operational excellence. The combined influence of all the predictor factors explained 59.9% of the variance change in operational excellence. This study contributed to the enrichment of current literature on the impact of awards on operational excellence from the education institutions perspective. Based on these findings, several recommendations were made for the management of the institutions, as well as for the future research.

Keywords: Awards, Operational Excellence, Impact, International Schools, Singapore.

Introduction

In the landscape of education, the pursuit of operational excellence stands as a foundational pillar for institutions striving to deliver exceptional learning experiences and support services. In recent years, the significance of recognizing and celebrating operational excellence through awards has garnered increasing attention within the education sector. Awards are invaluable to many, especially to organisations for recognition of being excellence in the field that they are engaging with. Motivation theory and the emerging body of empirical literature suggest that awards can have a significant impact on employee motivation and corporate performance (Main, 2023; Tarver, 2020; Debara, 2022; Susanto et al., 2021; Cherry, 2023). They express recognition and support their recipients' perceived competence and social status (Fong et al., 2017; Gallus & Frey, 2016; Hewitt, 2015). Awards help to retain valuable employees and to establish role models (Bi et al., 2019). However, scholars in management and economics have only recently begun to study their impacts and the mechanisms through which they operate (Frey & Gallus, 2017).

Motivated by the imperative to meet the evolving demands of stakeholders and maintain competitive advantage, education institutions are increasingly turning to awards as a means of external validation for their commitment to excellence (Frey & Gallus, 2017). These awards, ranging from regional accreditations to national and international honours, serve as symbols of achievement as well as catalysts for continuous improvement and innovation. Understanding the motivations that drive institutions to pursue these awards is crucial for discerning their broader implications on organizational behaviour and performance.

Moreover, the mechanisms through which awards impact operational excellence in education institutions are multifaceted and interconnected. The process of applying for awards often entails rigorous self-assessment, benchmarking against industry standards, and the implementation of best practices identified through the evaluation process. This iterative cycle of assessment and improvement not only enhances operational efficiency but also fosters a culture of excellence and continuous learning within institutions.

Furthermore, the outcomes of awards on operational excellence extend beyond mere recognition, encompassing tangible benefits such as enhanced institutional reputation, increased student enrolment, improved faculty recruitment, and heightened financial sustainability. By showcasing exemplary practices and achievements, awards position education institutions as leaders in the field, attracting talented individuals and resources that further contribute to organizational success.

In the rapidly evolving landscape of global education, operational excellence has emerged as a critical factor for the success and sustainability of international schools. Situated at the crossroads of cultural diversity and academic rigour, international schools in Singapore represent a microcosm of educational innovation and excellence. As these institutions strive to maintain their competitive edge and uphold their reputation for delivering superior educational experiences, the pursuit of operational excellence becomes paramount.

Central to the quest for operational excellence in international schools is the recognition and acknowledgment of exemplary performance through awards and accolades. According to Frey and Gallus (2017), awards serve as external validations of an institution's commitment to excellence, motivating continuous improvement efforts and fostering a culture of innovation. In this context, awards not only celebrate achievements but also provide benchmarks for best practices and quality standards (Deming, 2018).

While previous research has primarily examined the incentive effects of awards in corporate and individual contexts, there is a noticeable gap in the literature regarding the education sector (Mbukanma, 2022; Fong et al., 2017). Specifically, the impact of awards on operational excellence within international schools in Singapore has received limited attention. Thus, this study aims to shift the focus towards exploring how awards influence operational success within educational institutions, particularly within the context of international schools in Singapore. Despite anecdotal evidence suggesting the significant role of awards in shaping institutional practices and outcomes, empirical research in this area is lacking. Therefore, our research seeks to investigate the effects of awards on operational excellence in international schools in Singapore, with a focus on understanding the motivations behind pursuing awards, the mechanisms through which they influence institutional practices, and the resulting outcomes.

The Significance of the Study

The significance of this research extends beyond the immediate context of international schools, offering insights into the strategic role of awards in fostering operational excellence and continuous improvement. By investigating the impact of awards on operational excellence, this study provides valuable insights into the mechanisms through which recognition and accolades contribute to the overall performance of international schools. Understanding how awards influence various aspects of school operations, such as teaching practices, curriculum development, and student engagement, can help school leaders make informed decisions to optimize their performance.

In particular, this research sheds light on how international schools in Singapore can leverage awards to enhance their performance, reputation, and competitiveness in the global education market. By identifying the key factors that contribute to the success of award-winning schools, such as innovative teaching methods, strong leadership, and a supportive learning environment, this study offers practical recommendations for school administrators and policymakers. These insights can inform strategic planning and resource allocation decisions, enabling schools to effectively capitalize on their achievements and differentiate themselves in an increasingly competitive landscape.

Moreover, this research contributes to the broader discourse on quality assurance and improvement in the education sector. By highlighting the importance of recognizing and celebrating excellence in education, this study underscores the value of continuous quality improvement initiatives. By fostering a culture of excellence and innovation, awards can inspire schools to strive for excellence and continually raise the bar for educational outcomes. This research underscores the importance of ongoing evaluation and refinement processes to ensure that schools remain responsive to the evolving needs and expectations of students, parents, and society at large.

In short, this research offers valuable insights into the strategic significance of awards in driving operational excellence, enhancing reputation, and fostering continuous improvement in international schools. By illuminating the pathways through which awards influence school performance and student learning experiences, this study provides actionable recommendations for school leaders, policymakers, and researchers seeking to promote excellence in education.

Objective of the Study

The objective of this study is to determine the extent to which awards have impacted the operational excellence of international schools in Singapore.

Research Questions

This study is conducted with the intention to address the following research questions:

- i. What level of achievement have international schools in Singapore attained in terms of awards for operational excellence?
- ii. Is there any significant difference in terms of operational excellence in accordance with the location of the schools, category of the respondents, gender, age groups, and programmes?
- iii. Is there a significant relationship between awards and operational excellence in international schools in Singapore?
- iv. To what extent have awards impacted operational excellence in international schools in Singapore?

Hypothesis

- Ho1 There is no significant difference of the operational excellence in accordance with the location of the international schools.
- Ho2 There is no significant difference of the operational excellence in accordance with category of the respondents.
- Ho3 There is no significant difference of the operational excellence in accordance with gender.
- Ho4 There is no significant difference of the operational excellence in accordance with age groups.
- Ho5 There is no significant difference of the operational excellence in accordance with the programmes offered by the international schools.
- Ho6 There is no significant relationship between awards and operational excellence in international schools in Singapore.
- Ho7 Awards have not impacted operational excellence in international schools in Singapore.

Literature Review

Motivation Theory

Motivation theories offer valuable insights into how awards can positively influence operational excellence within international schools. According to Expectancy Theory, individuals are driven to perform when they believe their efforts will lead to desirable outcomes, such as recognition or awards (Main, 2023; Tarver, 2020; Vroom, 1964). In the context of awards and operational excellence, individuals in international schools may perceive that their hard work and dedication will increase their chances of receiving recognition or awards, thereby enhancing their motivation to excel in their roles.

Similarly, Locke's Goal-Setting Theory posits that setting specific and challenging goals can lead to higher performance. Awards often serve as tangible goals for individuals and institutions to strive towards (Debara, 2022; Locke & Latham, 2006; Locke, 1968). Knowing that operational excellence could lead to receiving awards can inspire individuals to set higher performance standards and work towards achieving them.

Moreover, Reinforcement Theory suggests that behaviours that are positively reinforced are more likely to be repeated (Skinner, 1969; Susanto et al., 2021). Awards serve as positive reinforcement for operational excellence, reinforcing the behaviours and practices that lead to superior performance. When individuals or institutions receive awards for their achievements in operational excellence, they are more likely to continue and even enhance those behaviours in the future.

While Intrinsic Motivation Theory emphasizes that extrinsic rewards like awards can be powerful motivators, intrinsic motivation, which comes from within oneself, is also important (Cherry, 2023; Ryan & Deci, 2000). Awards can serve as symbols of achievement and recognition, tapping into individuals' intrinsic desires for personal growth and fulfilment. Knowing that their efforts are recognized and appreciated through awards can fuel individuals' intrinsic motivation to continue striving for excellence in their work.

In summary, theories of motivation provide a theoretical framework for understanding how awards can positively impact operational excellence in international schools. Awards symbolise achievement and recognition, tapping into individuals' intrinsic desires for personal growth and fulfilment. Recognising the interplay of these theories, awards not only motivate individuals and institutions by offering tangible goals and rewards but also validate their intrinsic aspirations for excellence. Ultimately, by aligning with principles of expectancy, goal-setting, reinforcement, and intrinsic motivation, awards can effectively foster a culture of continuous improvement and excellence within international schools.

Impact of Awards on Operational Excellence

The impact of awards on organizational performance and individual motivation has been widely explored across various fields, yet its relevance within the education sector, particularly in international schools, remains an area of growing interest. Allen (2024) provided insights into the landscape of international schools in Singapore, highlighting their significance in the education sector and the diverse curricula they offer. However, there is a lack of empirical research focusing on the role of awards in shaping operational excellence within these institutions.

From a behavioural economics perspective, Bi et al (2019) shed light on the relationship between self-esteem, academic recognition, and individual behaviour, offering insights into the potential motivational effects of awards.

In the corporate context, Mahamudul and Maqbul (2021) conducted a thorough analysis of the multifaceted dimensions inherent in corporate recognition awards, shedding light on their profound implications for shaping corporate reputation and fostering a positive organizational image. Similarly, Frey and Gallus (2017) undertook a comprehensive examination of the economic underpinnings of awards, presenting a conceptual framework aimed at elucidating the strategic ramifications of recognition programs within corporate settings. Building upon this foundation, Gallus and Frey (2016, 2017) delved deeper into the strategic signalling role played by awards, elucidating their far-reaching influence on organizational behaviour and performance dynamics. Hewitt (2015) significantly contributed to this discourse by elucidating the intrinsic link between employee engagement and organizational outcomes, underscoring the pivotal role of recognition initiatives in driving heightened motivation levels and fostering unwavering commitment among organizational members.

Turning to the education sector, Mbukanma (2022) delved into the impact of awards on teacher motivation and performance within primary schools, shedding light on the

potential advantages of recognition initiatives in bolstering teacher engagement and effectiveness. Bliven and Jungbauer (2021) investigated the impact of student recognition of excellence on outcomes within competency-based educational models, suggesting that awards can influence student performance and engagement. Similarly, Oktaviano and Budiono (2021) scrutinized the influence of awards on organizational commitment among high school educators, proposing that recognition programmes can amplify commitment levels and job satisfaction within educational settings. Furthermore, Movsessian (2018) conducted an exploration into the necessity of teacher acknowledgment and its role in shaping school culture, underscoring the significance of appreciation in cultivating a conducive and supportive educational milieu.

In the realm of community college education, Fong et al (2017) conducted a meta-analytic investigation into psychosocial factors affecting student success, emphasizing the importance of recognition and its potential impact on academic outcomes. Earlier research conducted by Kelley (1999), examined the motivational impact of school-based performance awards, providing empirical evidence of their effectiveness in enhancing student performance and behaviour.

Collectively, these studies underscore the importance of awards in motivating individuals, shaping organizational behaviour, and driving performance across various contexts. However, there is a need for further empirical research to provide a comprehensive understanding of the impact of awards on operational excellence in the aspects of administrative efficiency, facilities and infrastructure quality, stakeholders satisfaction, compliance with regulatory standards, and student enrolment and retention rates within educational institutions, specifically in international schools, in the context of Singapore.

Conceptual Framework

Figure 1 shows the conceptual framework for this study. Five aspects of awards, namely, types of awards, number of awards, relevancy of awards, value of awards, and prestige and reputation of awards, and five demographic aspects, i.e., location, category of the respondents, gender, age groups, and programmes served as the independent variables, while operational excellence is the dependent variable.

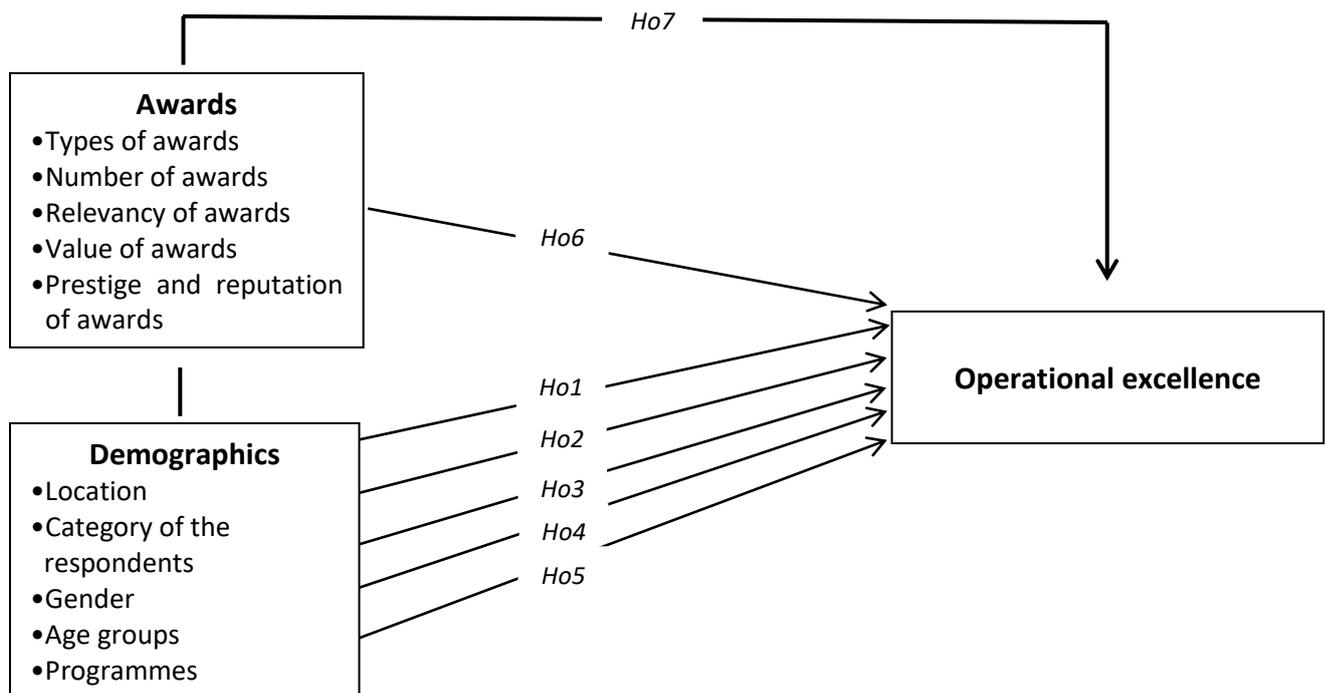


Figure 1: Conceptual Framework

(Source: Adapted from Bliven & Jungbauer, 2021; Bi et al., 2019; Fong et al., 2017; Frey & Gallus, 2017; Hewitt, 2015)

Methodology

Research Design

The objective of this study is to determine the extent to which awards have impacted the operational excellence of international schools in Singapore. This is a retrospective longitudinal quantitative study of all awards achieved by Singapore's international schools from 2014 to 2023. A quantitative research method was employed with the emphasis on the objective measurements and numerical analysis. Both descriptive and inferential analyses were used to test the hypotheses and subsequently address the research questions. A cross sectional content analysis study approach was also implemented on the data available from international schools in Singapore that had achieved a minimum of one award with the establishment of ten years across the entire nation.

Participants

According to data provided by Allan (2024), Singapore is currently home to 90 international schools, with the majority located in five main regions: the East Coast, West Coast, North, South, and Central Business District (CBD). The student's population is about 63,000 (Ministry of Education, Singapore [MOE], 2024). The participants in this study were randomly selected from international schools located in these regions. By using the purposive sampling method (Quinlan et al., 2024) and referring to Krejcie and Morgan's (1970) Table of Minimising Sample Size, a total of 421 staff, students, and parents from the research population were determined as the sample size of this study. This method was chosen as it aimed to delve with the key factors that potentially influenced by the awards received within the targeted research area.

Table 1 below shows the distribution of the participants in accordance with five demographic factors, namely, location of the schools, category of the respondents, gender, age groups, and programmes offered by the schools.

Table 1
Demographic Profile of the Participants

Factor	Demographic variable	Frequency	Percentage (%)
Location	East Coast	92	21.9
	West Coast	89	21.1
	North	78	18.5
	South	50	11.9
	Central Business District	112	26.6
Category	Staff	185	43.9
	Student	150	35.6
	Parent	86	20.5
Gender	Male	202	48.0
	Female	219	52.0
Age group (years)	Below 21	150	35.6
	21-30	32	7.6
	31-40	109	25.9
	41-50	79	18.8
	51 and above	51	12.1
Programme	CBSE	152	36.1
	IGCSE	133	31.6
	IB	136	32.3

Table 1 illustrates the distribution of participants based on their affiliation with international schools in Singapore. Among the participants, 112 (26.6%) were from international schools located in the Central Business District, with the East Coast, West Coast, North, and South regions accounting for 92 (21.9%), 89 (21.1%), 78 (18.5%), and 50 (11.9%) participants, respectively. Most participants (185, 43.9%) comprised staff members of the international schools, while 150 participants (35.6%) were students, and the remaining 86 (20.5%) were parents. In terms of gender, there were slightly more female participants (219, 52.0%) than male participants (202, 48.0%). Most participants aged below 21 years old (150, 35.6%). This was followed by 109 participants (25.9%), 79 participants (18.8%), and 51 participants (12.1%) who aged 31-40 years old, 41-50 years old, and 51 years old and above, respectively. Only 32 of them (7.6%) aged 21-30 years old. The distribution of participants based on programme was relatively even, with 152 (36.1%) from the CBSE, 133 (31.6%) from the IGCSE, and 136 (32.3%) from IB programmes.

Data Collection

The instrument of this research study was a set of questionnaires which was adapted from Bi et al (2019); Fong et al (2017); Hewitt (2015); Kelley (1999) as a tool for data collection. The questionnaires comprised three sections: Section A focused on Demographic Factors, Section B on Awards, and Section C on Operational Excellence, totalling 21 questions. To determine the reliability and construct validity of the questionnaires, a pilot test was conducted involving 30 participants from the research population. The results of the pilot study revealed that the

Cronbach’s Alpha coefficients for all variables were relatively high, i.e., Awards – $\alpha = 0.899$ (> 0.700); Operational Excellence - $\alpha = 0.883$ (> 0.700). From the aspect of construct validity, an items analysis was carried out and results showed that the questionnaires had reached the significant level at 0.05. In addition, Factor Analysis had further strengthened the construct validity of the questionnaires.

Statistical Analysis

The researcher addressed whether the data are parametric or not before selecting a statistical analysis or test. In this context, all data in this study were parametric. Therefore, there were five types of analyses administrated in this study, namely, Descriptive Analysis, Independent Sample T-Test, One-way ANOVA, Pearson Correlation Analysis and Multiple Linear Regression Analysis. Descriptive Analysis was carried out on the distribution of the demographic variables and to determine the level of achievement in terms of awards and operational excellence by the institutions. Independent Sample T-Test and One-way ANOVA tests were conducted to test the difference in terms of operational excellence in accordance with the demographic factors (Ho1 – Ho5). Correlation Analysis was conducted to test hypothesis Ho6. It was further strengthened by a Multiple Linear Regressions Analysis to test hypothesis Ho7, and finally a model was developed as follow:

$$OP_EXCL. = \alpha + \beta1TYPE + \beta2NUM + \beta3REV + \beta4VALUE + \beta5PR$$

Where α is constant, OP_EXCL. refers to operational excellence, TYPE refers to types of awards, NUM refers to number of awards received, REV refers to relevancy of the awards, VALUE refers to value of the awards, PR refers to prestige and reputation of awards and $\beta1-5$ are the coefficients to be tested.

Results and Discussion

The Level of Achievement in Awards for Operational Excellence

The first research question of this study is: "*What level of achievement have international schools in Singapore attained in terms of awards for operational excellence?*" To address this inquiry, five items indicating types of awards, number of awards received, relevancy of awards, prestigious award titles, and widespread recognition within the education community were tailored for this purpose. The results of these inquiries are presented in Table 2.

Table 2
Mean and Standard Deviation of the Level of Achievement in Awards for Operational Excellence

	<i>Mean (\bar{x})</i>	<i>Standard Deviation (SD)</i>
Awards		
•Types of awards	4.0443	.72421
•Number of awards	4.5454	.74388
•Relevancy of the awards	4.4972	.75313
•Value of awards	4.3551	.69977
•Prestige and Reputation of awards	4.5705	.73518
Overall	4.4025	.73123
<i>Valid N (listwise): 421</i>		

Table 2 presents the mean scores and standard deviations reflecting the level of achievement attained by international schools in Singapore concerning awards for operational excellence. The overall mean score was 4.4025 (SD = .73123), surpassing the anticipated mean of 4.0. Regarding the prestige and reputation of these awards, the mean score was 4.5705 (SD = .73518), indicating that, on average, the awards received by these international schools are rated at 4.5705 or 91.4% of prestigious award titles, marking the highest-rated aspect among all awards. Following closely is the number of awards, with a mean score of 4.5454 (SD = .74388), suggesting that, on average, these international schools have received 4.5454 awards since establishment. The mean value for the relevancy of awards stood at 4.4972 (SD = .75313), signifying that 4.4972 or 89.9% of the awards received by the international schools were relevant to their institutions. In fourth place among the five aspects of awards is the value of awards, with a mean score of 4.3551 (SD = .69977), indicating a high level of appreciation (4.3551 or 87.1%) for the awards received by the international schools. Lastly, the mean value for the types of awards received is 4.0443 (SD = .71424), suggesting that, on average, all types of awards received by the international schools are rated at 4.0443 or 80.88% importance. In summary, the level of achievement in awards for operational excellence among the international schools in Singapore is considered high.

Hypothesis Testing

The Difference of the Operational Excellence in Accordance with Demographic Factors

The second research question of this study is *“Is there any significant difference in terms of operational excellence in accordance with the location of the schools, category of the respondents, gender, age groups, and programmes?”* To address this inquiry, hypothesis Ho1 – Ho5 were set to test the significant difference of the operational excellence in accordance with the five demographic factors, namely, location of the international schools situated, category of the respondents, gender, age groups, and programmes offered by the schools. The results of this study are shown in Table 3, 4, 5, 6, and 7.

Hypothesis Ho1

There is no significant difference of the operational excellence in accordance with the location of the international schools.

Table 3

Mean Scores and F-Values Difference in Operational Excellence in Accordance with Location of the International Schools

ANOVA

Operational excellence

	Sum of Squares	df	Mean Square (\bar{x}) ²	F	Sig.
Between Groups	13.323	4	3.331	6.336	.000
Within Groups	218.674	416	.526		
Total	231.997	420			

Multiple Comparisons

Dependent Variable: Operational excellence

Tukey HSD

(I) Country where the school situated	(J) Country where the school situated	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
East Coast	West Coast	-.02229	.11720	1.000	-.3434	.2988
	North	.38986*	.12346	.015	.0516	.7281
	South	-.13203	.13955	.879	-.5144	.2503
	Central Business District	-.15088	.09727	.530	-.4174	.1156
West Coast	East Coast	.02229	.11720	1.000	-.2988	.3434
	North	.41215*	.12772	.012	.0622	.7621
	South	-.10974	.14334	.940	-.5025	.2830
	Central Business District	-.12859	.10263	.720	-.4098	.1526
North	East Coast	-.38986*	.12346	.015	-.7281	-.0516
	West Coast	-.41215*	.12772	.012	-.7621	-.0622
	South	-.52189*	.14850	.004	-.9287	-.1150
	Central Business District	-.54074*	.10972	.000	-.8413	-.2401
South	East Coast	.13203	.13955	.879	-.2503	.5144
	West Coast	.10974	.14334	.940	-.2830	.5025
	North	.52189*	.14850	.004	.1150	.9287
	Central Business District	-.01885	.12756	1.000	-.3683	.3306
Central Business District	East Coast	.15088	.09727	.530	-.1156	.4174
	West Coast	.12859	.10263	.720	-.1526	.4098
	North	.54074*	.10972	.000	.2401	.8413
	South	.01885	.12756	1.000	-.3306	.3683

*. The mean difference is significant at the 0.05 level.

From Table 3, there is a significant difference in operational excellence between the international schools from different locations as determined by one-way ANOVA [$F(4, 416) = 6.336, p < .01$]. A Tukey post-hoc test revealed that there is a statistically significant difference in operational excellence between the international schools from the north and east coast ($p < .05$), north and west coast ($p < .05$), north and south ($p < .01$), and north and Central Business District ($p < .01$) of Singapore. The level of operational excellence is significantly lower in the international schools from the north region as much as 0.38986, 0.41215, 0.52189, and 0.54074 in comparison with the level of operational excellence in the schools located at east

coast, west coast, south, and Central Business District respectively. However, there are no differences on the operational excellence between the schools from other regions ($p > .05$). Hence, the null hypothesis Ho1: There is no significant difference of the operational excellence in accordance with location of the international schools is rejected.

Hypothesis Ho2

There is no significant difference of the operational excellence in accordance with category of the respondents.

Table 4

Mean Scores and F-Values Difference in Operational Excellence in Accordance with Category of the Respondents

ANOVA

Operational excellence

	Sum of Squares	df	Mean Square (\bar{x}) ²	F	Sig.
Between Groups	2.323	2	1.161	2.114	.122
Within Groups	229.675	418	.549		
Total	231.997	420			

Table 4 shows that there is no significant difference on operational excellence in accordance with category of respondents as determined by one-way ANOVA [$F(2, 418) = 2.114, p > .05$]. Hence, we can summarise that the staff, students, and parents from the international schools in Singapore have similar perception on the operational excellence of their schools. Therefore, the null hypothesis Ho2: There is no significant difference of the operational excellence in accordance with category of the respondents is failed to be rejected.

Hypothesis Ho3

There is no significant difference of the operational excellence in accordance with gender.

Table 5

Mean Scores and T-Values Difference in Operational Excellence in Accordance with Gender

Operational Excellence

Gender	N	Mean (\bar{x})	SD	Std. Error Mean	t	Sig.
Male	202	4.0977	.66802	.04834	-.011	.991
Female	219	4.0986	.80177	.05287		

Significant at the 0.05 level

Table 5 presents the results of the T-Test comparing mean scores and T-values for operational excellence according to gender. The analysis revealed that there is no significant difference in operational excellence between male and female respondents from international schools in Singapore ($t = -.011, df = 418.994, p > .05$). Both male ($\bar{x} = 4.0977, SD = .66802$) and female respondents ($\bar{x} = 4.0896, SD = .80177$) reported similar perceptions of operational excellence within their schools. Consequently, the null hypothesis Ho3: There is no significant difference in operational excellence according to gender is failed to be rejected.

Hypothesis Ho4

There is no significant difference of the operational excellence in accordance with age groups.

Table 6

Mean Scores and F-Values Difference in Operational Excellence in accordance with age groups

ANOVA**Operational excellence**

	Sum of Squares	df	Mean Square (\bar{x}) ²	F	Sig.
Between Groups	.447	3	.149	.691	.844
Within Groups	90.403	417	.217		
Total	90.850	420			

Table 6 displays the results of the ANOVA Test assessing differences in operational excellence across age groups. The significance value, 0.844 ($p = .844$), exceeds the threshold of 0.05 ($p > .05$), indicating a lack of statistically significant difference in mean scores of operational excellence between the age groups [$F(3, 417) = .691, p > .05$]. Consequently, it can be concluded that staff, students, and parents across all age groups within international schools in Singapore hold similar perceptions of operational excellence. As a result, the null hypothesis Ho4: There is no significant difference in operational excellence across age groups is failed to be rejected.

Hypothesis Ho5

There is no significant difference of the operational excellence in accordance with the programmes offered by the international schools.

Table 7

Mean Scores and F-Values Difference in Operational Excellence in accordance with the Programmes Offered by the International Schools

ANOVA**Operational excellence**

	Sum of Squares	df	Mean Square (\bar{x}) ²	F	Sig.
Between Groups	43.441	2	21.721	48.151	.000
Within Groups	188.556	418	.451		
Total	231.997	420			

Multiple Comparisons

Dependent Variable: Operational excellence

Tukey HSD

(I) Programme	(J) Programme	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
CBSE	IGCSE	.31439*	.09070	.002	.1011	.5277
	IB	1.20385*	.12627	.000	.9069	1.5008
IGCSE	CBSE	-.31439*	.09070	.002	-.5277	-.1011
	IB	.88946*	.14624	.000	.5455	1.2334
IB	CBSE	-1.20385*	.12627	.000	-1.5008	-.9069
	IGCSE	-.88946*	.14624	.000	-1.2334	-.5455

*. The mean difference is significant at the 0.01 level.

Table 7 illustrates that the F value is 48.151, which demonstrates statistical significance with a p-value of 0.00 ($p < .01$). This indicates a significant difference between the means of operational excellence across the different programme groups [$F(2, 418) = 48.151, p < .01$]. Subsequently, the Tukey Post Hoc Test reveals that respondents from the CBSE programme hold a statistically significantly higher perception of operational excellence in their schools compared to those from the IGCSE programme ($\pm .31439, p < .01$) and the IB programme ($\pm 1.20385, p < .01$), as well as between IGCSE and IB programmes ($\pm .88946, p < .01$). Consequently, the null hypothesis H_05 : There is no significant difference in operational excellence across programs offered by international schools is rejected.

The Relationship between Awards and Operational Excellence

The third research question of this study is “*Is there a significant relationship between awards and operational excellence in international schools in Singapore?*” To answer this inquiry, the null hypothesis H_06 : There is no significant relationship between awards and operational excellence in international schools in Singapore, was set. In the meantime, to measure the strength of the relationship between the test variables, the researcher had referred to the Correlation Value Interpretation Table (Table 8) developed by Bartlett, Kontrlik and Hingins (2001). Besides, the parametric assumptions of the data set of this study had been addressed prior to the implementation of the Pearson Product-Moment Correlation to determine the significance of the relationships between the variables.

Table 8

Correlation Value Interpretation

Value (r)	Strength
$\pm 0.70-0.99$	Very strong
$\pm 0.50-0.69$	Strong
$\pm 0.30-0.49$	Moderately strong
$\pm 0.10-0.29$	Weak
$\pm 0.01-0.09$	Very weak

Table 9

*Correlations between Awards and Operational Excellence***Correlations**

		OP_EXCL	Types of awards	Number of awards	Relevancy of awards	Value of awards	Prestige and reputation of awards
Operational excellence (OP_EXCL)	Pearson Correlation	1	.816**	.800**	.773**	.754**	.748**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	421	421	421	421	421	421
Types of awards	Pearson Correlation	.816**	1	.877**	.860**	.799**	.809**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	421	421	421	421	421	421
Number of awards	Pearson Correlation	.800**	.877**	1	.881**	.854**	.801**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	421	421	421	421	421	421
Relevancy of awards	Pearson Correlation	.773**	.860**	.881**	1	.858**	.793**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	421	421	421	421	421	421
Value of awards	Pearson Correlation	.754**	.799**	.854**	.858**	1	.754**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	421	421	421	421	421	421
Prestige and Reputation of awards	Pearson Correlation	.748**	.809**	.801**	.793**	.754**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	421	421	421	421	421	421

***. Correlation is significant at the 0.01 level (2-tailed).*

From Table 9, it is found that there is a significant, positive, and strong relationship between types of awards and operational excellence ($r = .816$, $n = 421$, $p < .01$). The positive significant relationship shows that a unit of increase in the different types of awards received by the international schools increases 0.816 unit in the level of achievement in operational excellence of the schools and vice versa. The results supported previous research's findings (Mbukanma, 2022; Bi et al., 2019; Fong et al., 2017; Kelley, 1999).

A significant, positive, and strong relationship also found between number of awards and operational excellence ($r = .800$, $n = 421$, $p < .01$). The positive significant relationship shows that a higher number of awards received will resulted a better level of achievement in operational excellence of the international schools and vice versa. The results concur with the previous findings (Mbukanma, 2022; Movsessian, 2018; Fong et al., 2017).

Similarly, there is a significant, positive, and strong relationship between relevancy of awards and operational excellence ($r = .773$, $n = 421$, $p < .01$). The positive significant relationship shows that higher relevancy of the awards received can increase the level of achievement in operational excellence of the international schools and vice versa. The results supported the findings from previous studies (Oktaviano & Budiono, 2021; Frey & Gallus, 2017; Gallus & Frey, 2016).

Likewise, there is a significant, positive, and strong relationship between value of awards and operational excellence ($r = .754$, $n = 421$, $p < .01$). The positive significant relationship shows that any increase in the value awards received will increase the level of achievement in operational excellence of the international schools and vice versa. The results are consistent with the findings from previous studies by Frey & Gallus (2017) and Gallus & Frey (2016).

Finally, a significant, positive, and strong relationship is found between prestige and reputation of awards and operational excellence ($r = .748$, $n = 421$, $p < .01$). The positive significant relationship shows that a higher recognition of awards received will resulted a higher level of achievement in operational excellence of the international schools and vice versa. The results concur with the previous findings (Oktaviano & Budiono, 2021; Bi et al., 2019; Gallus & Fred, 2016; Hewitt, 2015).

In summary, we can conclude that all the factors in awards showed significant, positive, and strong relationships with operational excellence. Therefore, the null hypothesis Ho6: There is no significant relationship between awards and operational excellence in international schools in Singapore, is rejected.

The Impact of Awards on Operational Excellence

The fourth research question of this study is “*To what extent have awards impacted operational excellence in international schools in Singapore?*” To address this inquiry, the null hypothesis, Ho7: Awards have not impacted operational excellence in international schools in Singapore, was set. The analysis of regressions was conducted to ascertain the impact of the independent variables, i.e., the awards (types of awards, number of awards, relevancy of the awards, value of the awards and prestige and reputation of awards), on the dependent variables, i.e. operational excellence. The results are showed in Table 10.

Table 10
Correlation and Multiple Regressions of Awards on Operational Excellence

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777 ^a	.603	.599	.47085

a. Predictors: (Constant), Type of awards, Number of awards, Relevancy of awards, Value of awards, Prestige and reputation of awards.

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	139.992	5	27.998	126.289	.000 ^b
	Residual	92.006	415	.222		
	Total	231.997	420			

a. Dependent Variable: Operational excellence

b. Predictors: (Constant), Type of awards, Number of awards, Relevancy of awards, Value of awards, Prestige and reputation of awards.

Coefficients^a

Model	Unstandardized	Standardized	t	Sig.
	Coefficients	Coefficients		
	B	Std. Error	Beta	
(Constant)	.335	.175		1.915 .000
1				
Types of awards	.113	.058	.094	1.942 .000
Number of awards	.213	.064	.215	3.335 .000
Relevancy of awards	.149	.066	.154	2.254 .000
Value of awards	.079	.069	.081	1.141 .000
Prestige & reputation of awards	.309	.060	.309	5.113 .000

a. *Dependent Variable: Operational excellence*

Table 10 shows the results of the multiple Regressions Analysis of the impact of awards on operational excellence. From the Model Summary table, it is concluded that all the independent variables of the awards statistically significantly predict the dependent variable of operational excellence [F (5, 415) = 126.289, $p < .01$]. The combined influence of all the predictor factors explained 59.9% of the variance change in the operational excellence ($R^2 = .603$, Adj. $R^2 = .599$, $p < .01$). In this context, nearly 40% of the variance in operational excellence explained by other factors than the awards. The results show that prestige and reputation of awards is found to be the best predictor factor for operational excellence ($\beta = .309$, $p < .01$). Number of awards ($\beta = .213$, $p < .01$), relevancy of awards ($\beta = .149$, $p < .05$), types of awards ($\beta = .113$, $p < .01$), and value of awards ($\beta = .079$, $p < .01$) are also good predictor factors of the operational excellence. With that said, the null hypothesis Ho7: Awards have not impacted operational excellence in international schools in Singapore, is rejected. The results supported largely on the existing literatures of the factors influencing operational excellence and the previous research (Oktaviano & Budiono, 2021; Frey & Gallus, 2017; Gallus & Frey, 2016). Therefore, the final model for operational excellence is as follows:

$$OP_EXCL. = 0.335 + 0.113TYPE + 0.213NUM + 0.149REV + 0.079VALUE + 0.309PR$$

Where OP_EXCL. refers to operational excellence, TYPE refers to types of awards, NUM refers to number of awards received, REV refers to relevancy of the awards, VALUE refers to value of the awards, PR refers to prestige and reputation of awards.

Conclusion and Recommendations

This study explored the level of achievement in awards for operational excellence among international schools in Singapore and investigated the relationships between awards and operational excellence. The findings reveal that international schools in Singapore have attained a high level of achievement in awards for operational excellence, with prestigious award titles and widespread recognition being particularly noteworthy. Furthermore, the study found significant relationships between various aspects of awards (types, number, relevancy, value, prestige, and reputation) and operational excellence. These results indicate that awards play a crucial role in influencing operational excellence in international schools.

Drawing from these findings, we propose several recommendations for international schools in Singapore to optimize the use of awards, thereby fortifying their operational excellence and solidifying their status as premier institutions in the education sector. International schools in Singapore can bolster their operational excellence by intensifying their efforts to gain recognition through various awards. Diversifying the types of awards pursued, with a focus on relevancy, value, prestige, and reputation, can amplify their impact on overall performance. Prioritizing prestigious awards with widespread recognition within the education community is crucial, as these have demonstrated the strongest correlation with operational excellence. Moreover, implementing targeted training programmes for school administrators, staff, and students can enhance their understanding of the significance of awards and their role in achieving operational excellence. These programmes may include workshops, seminars, and professional development sessions.

To ensure continuous improvement, international schools should establish mechanisms for ongoing monitoring and evaluation of the impact of awards on operational excellence. Regular assessment of award attainment and its correlation with operational performance will provide valuable insights for strategic decision-making and improvement initiatives. Additionally, fostering collaborative research efforts among international schools, educational institutions, and research organizations can facilitate the sharing of best practices and insights, benefiting the broader education community in Singapore and beyond.

The relationship between awards and institutional operational excellence is a complex and multifaceted one, often characterized by a symbiotic exchange of recognition and improvement. Awards serve as external validations of an institution's commitment to excellence in its operations, providing recognition for outstanding achievements and serving as benchmarks for comparison within industries or sectors. Conversely, institutional operational excellence forms the foundation upon which these awards are based, as it represents the consistent delivery of high-quality products, services, or processes that meet or exceed stakeholder expectations.

Moreover, awards can enhance an institution's reputation and credibility in the eyes of stakeholders, including customers, investors, and employees. Institutions that consistently receive awards for operational excellence are perceived as industry leaders and are more likely to attract top talent, retain loyal customers, and secure investment opportunities. This positive feedback loop reinforces the importance of operational excellence as a strategic priority for institutions seeking to maintain a competitive edge in their respective markets.

However, it is essential to recognize that awards alone do not guarantee operational excellence, nor do they capture the full spectrum of an institution's performance. While awards may recognize specific achievements or initiatives, true operational excellence encompasses a holistic approach to organizational management, encompassing factors such as leadership, culture, strategy, and stakeholder engagement. Therefore, for future research, researcher must view awards as part of a broader framework for continuous improvement, rather than as an end goal in the international schools. Other factors such as location and programmes offered should be considered for further investigation as well.

In conclusion, the relationship between awards and institutional operational excellence is characterized by a reciprocal exchange of recognition and improvement. Awards serve as external validations of an education institution's commitment to excellence, motivating continuous improvement efforts and enhancing reputation and credibility. However, achieving true operational excellence requires a holistic approach that goes beyond accolades to encompass all aspects of organizational management. By leveraging awards as catalysts for

improvement and maintaining a steadfast commitment to excellence, education institutions such as international schools can cultivate a culture of innovation and achieve sustainable success in today's competitive landscape.

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