

Awareness of Accrual-based Budgeting in the Malaysian Public Sector

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Abstract

Purpose: The current study hypothesises that the antecedent factors (knowledge, skills and abilities, change attitude, and training) would influence budget preparers' awareness of accrual-based budgeting in the Malaysian public sector.

Design/Methodology/Approach: This study employed a questionnaire survey to investigate three variables, namely knowledge, skills and abilities, change attitude, and training in predicting the accrual-based budgeting awareness among budget preparers in the Malaysian government sector. Before data collection, the questionnaire survey was validated by conducting expert reviews before examining 42 pilot data through exploratory factor analysis (EFA). Subsequently, multiple regression analysis was performed on 174 collected responses.

Findings: The findings revealed that the three variables significantly influence budget preparers' awareness of accrual-based budgeting in the Malaysian public sector. Specifically, fundamental knowledge is essential to assist in implementing accrual-based budgeting, while skills and capabilities, including communication, analytical, interpersonal, and technical skills, are integral to participating in the planning, preparation, negotiation, and

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monitoring of accrual-based budgeting activities. Simultaneously, budget preparers' commitment to change, self-efficacy, and valence would be critical in transforming from cash-based to accrual-based budgeting. Furthermore, robust training is pivotal to increasing accrual-based budgeting awareness.

Practical Implications: The present study contributed theoretical evidence to the existing literature by addressing the knowledge gap due to limited studies on the relevant topic. This study also provided instrumental insights into accrual-based budgeting awareness determinants which supported the Malaysian government in executing the economic transformation agenda.

Originality/Value: The study is among the first to examine antecedent factors influencing accrual-based budgeting awareness to bridge the knowledge gap in the current literature.

Keywords: Awareness, knowledge, skills and abilities (KSA), change attitude, training, accrual-based budgeting.

1.0 Introduction

The Malaysian government has gradually reformed the budgetary approaches since 1981. After the British government adopted traditional budgeting in the 1950s, the Malaysian government employed a similar approach until being replaced by the programme and performance budgeting system (PPBS) in 1969 and followed by the modified budgeting system (MBS) in 1990 to concentrate more on outputs and outcomes. Due to the requirement for budgetary approach refinement, outcome-based budgeting was introduced in 2013 during the launch of the Government Transformation Programme (GTP) and the New Economic Model (NEM). Similarly, the reformation trend in the Malaysian general public sector highlighted the importance to adopt pertinent accrual accounting aspects as the government budgeting fundamental.

Monteiro and Gomes (2013) defined accrual budgeting as the methods implemented by budget preparers to use accrual accounting records and measures in the budgeting process. Accrual-based budgeting proponents suggested that the budgetary approach is essential to macroeconomic stabilisation, resource allocation, increased cost awareness, improved decision-making, and cost management (Diamond, 2006). Owing to the benefits proposed by relevant scholars, several major developed countries, including New Zealand, Australia, and Canada, have implemented the accrual budgeting system (Organisation for Economic Co-operation and Development/International Federation of Accountants Commission (OECD/IFAC), 2017) within two to five years with high adequacy of the required skills and resources. Contrastingly, developing nations, such as Malaysia with elementary systems, processes, and limited access to pivotal skills and resources, would

require a longer period to adopt accrual budgeting. As such, researchers should understand the Malaysian public sector awareness level of accrual budgeting and the relevant antecedents before extensively employing the system.

Prior studies demonstrated that knowledge, skills and abilities (KSA), change attitude, and training were generally associated with implementing management accounting reformations. Although earlier studies examined the accrual-based accounting implementation in Malaysia, relevant studies on accrual-based budgeting remained scarce (Ahmad, Ahmad and Mohamed, 2014; Azmi and Mohamed, 2014; Ismail, Siraj and Baharim, 2018). Moreover, as past researchers mainly examined country-level accrual-based budgeting (Athukorala and Reid, 2003; OECD/IFAC, 2017), more studies were required to scrutinise budget preparers' perspectives on accrual-based budgeting. Therefore, this study aimed to understand the underlying factors (the KSA, change attitude, and training) influencing budget preparers' accrual-based budgeting awareness in the Malaysian public sector. The study distributed survey questionnaires to the recruited budget preparers, who could be either accountants or non-accountants, to explore the effects of the three variables on accrual-based budgeting awareness.

The present study provided practical insights for the accrual-based budgeting regulators regarding the awareness level. Policymakers could implement more initiatives to increase accrual-based budgeting acceptance and further adoption. As the public sector represents the key national economic areas, the study findings significantly indicated the accrual-based budgeting high awareness level among Malaysian public sector budget preparers. Particularly, the KSA, change attitude, and training respectively and positively correlated with accrual-based budgeting awareness. Section 2 reviews previous studies on the awareness of accrual-based budgeting and develops hypotheses based on the KSA, change attitude, and training. Section 3 outlines the research methodology, while Section 4 and Section 5 analyse and discuss the study findings, before concluding the study in Section 6.

2.0 Awareness of Accrual-based Budgeting

Understanding the accrual-based budgeting concept could aid regulators in evaluating the importance of designing the most optimal budgeting approach. In Malaysia, the accrual accounting reformation is in process, with the Government Transformation Programme (GTP) and the New Economic Model (NEM) as the initiatives to drive the implementation in generating significant changes in public finance management. Despite numerous obstacles and challenges (such as unexpected delays) during accrual accounting implementation in the public sector (Yusof and Jaafar, 2018), more relevant research would be the subsequent step to create further progress when existing literature demonstrated that the reformation trend is positive. Accordingly, the Malaysian government should adopt and apply pertinent accrual accounting aspects in financial reports and budgets, before eventually implementing the entire system.

The accrual-based budgeting concept in the Malaysian public sector remains relatively innovative, as the idea is under practical development. Therefore, identifying the awareness level of accrual-based budgeting, especially among budget preparers, is crucial for the reformation progress. Nevertheless, relevant studies in discovering the applicability and practicability are limited, despite the multiple benefits and opportunities provided by accrual-based budgeting (Athukorala and Reid, 2003; Khan, 2013). The migration toward accrual-based budgeting might be hampered when Malaysian public sector employees, especially accountants and other accounting employees, were not highly conscious of the approach (Accountants Today, 2011). The circumstance might jeopardise the migration process with negative consequences on different parties, including the government, citizens, lenders, and stakeholders.

To successfully adopt the accrual accounting system, the Malaysian public sector is required to provide sufficient opportunities for public servants to equip with adequate knowledge in grasping the relevant concepts and procedures. Government accounting employees' readiness before the 2015 implementation plan was examined by Azmi and Mohamed (2014), aside from significant concerns and challenges toward accrual accounting application in the Malaysian Ministry of Education (MOE). The findings revealed that the MOE accounting employees exhibited high preparedness levels to implement accrual accounting by shifting from cash accounting. As such, Malaysian public employees' mindsets would be critical to achieving accrual accounting objectives, wherein high readiness degrees in a paradigm shift were induced when the implementation would provide higher government accounting transparency and efficiency.

Several major concerns about progressing toward accrual accounting exist. Azmi and Mohamed (2014) revealed that numerous accountants were not qualified and without the necessary skills to implement accrual accounting in the government sector. Most accountants were also unfamiliar with presenting accrual financial statements, which were ubiquitous in the private sector. Moreover, the study disclosed insufficient continuous internal training and a lack of a comprehensive roadmap from the top management and the Accountant General's Department during the implementation process. Consequently, the transition to accrual accounting was highly challenging and consumed several years to materialise. Similarly, Atan and Yahya (2015) argued that ensuring reformations to achieve the stipulated targets necessitated appropriate employees' readiness, behaviour, and mind set. The study determined the attributes pertinent to measure the readiness for transformation among Malaysian public sector accountants, wherein positive behaviour with high readiness to change was crucial to applying accrual-based accounting. Nonetheless, the results demonstrated that the accountants refused to be responsible for any unsuccessful accounting reformation.

Ismail et al. (2018) discovered further evidence to support past findings (Atan and Yahya, 2015; Azmi and Mohamed, 2014) that Malaysian public sector employees, particularly accountants, exhibited high readiness for accrual accounting implementation. The findings

suggested that public sector accountants were highly aware of and supported the Malaysian governmental financial transformation agenda. Meanwhile, Ahmad et al. (2014) identified critical factors affecting accrual accounting awareness, in which the regression results revealed that only organisational top management and external parties (external auditors and consultants) with exterior environments and training programmes) significantly correlated with accounting users' awareness of accrual accounting. Although past studies (Ahmad et al., 2014; Atan and Yahya, 2015; Azmi and Mohamed, 2014; Ismail et al., 2018) primarily investigated accrual accounting, the relevant insights are pertinent to accrual budgeting adoption. The current study employed the KSA competency study based on International Education Standards (IES) to examine the KSA construct, the theory of organisational readiness for change to discuss the change attitude construct, and Kirkpatrick's (1998) model to appraise the training construct.

2.1 Knowledge, Skills and Abilities (KSA)

Palmer, Ziegenfuss and Pinsker (2004) discovered the KSA integral to accountants were general business knowledge, accounting knowledge, communication skills, interpersonal skills, problem-solving skills, information technology skills, personal attitudes and capabilities, and computer skills. The KSA are the competence gauges prescribed by the IES under the International Federation of Accountants Commission (IFAC). Knowledge and skills are considered the ability to perform professional responsibilities (Barac, 2009; Brink and Stoel, 2016; Palmer et al., 2004; Wessels, 2005), with knowledge as the primary competitiveness source in public administration. Knowledge could also catalyse organisational change by directly contributing to government programmes' effectiveness and implementation. Furthermore, organisational knowledge is the specific knowledge derived from the collective experience or individual experiences of organisational members to achieve explicit or implicit goals. To ensure financially solid and successful accounting systems and accrual-based budgeting, public sector organisations should provide employees, especially budget preparers, with relevant knowledge and experience, before applying the knowledge or executing practices for desired results. On the other hand, skill is defined by the Merriam-Webster dictionary as the ability to use one's knowledge effectively and readily in execution of performance, while ability is defined as competence in doing something (Merriam-Webster Online Dictionary, 2022).

According to Hiatt (2006), an individual's ability is one of the building blocks in effective management model change and adoption. Nonetheless, the main obstacle to adopting accrual accounting is the scarcity of skilled financial and accrual change experts (Arshad, Omar and Awang, 2013). Hansma and Elving (2008) argued that the success of organisational change and adaptation with high employee acceptance would be contingent on substantial motivation and support from the organisational top management. Hence, top management should provide budget preparers with strong support through relevant training programmes, which would accelerate organisational transformation positively when employees could receive guidelines on executing the new system while enhancing individual

KSA. Resultantly, the public sector administrators could effectively alter employees' behaviour positively to reduce reluctance to adapt to the alternative system while expediting the organisational adoption of accrual-based budgeting. Nevertheless, the current KSA literature review unveiled limited studies examining the relationship between the KSA and accrual-based budgeting awareness among Malaysian public sector budget preparers. Correspondingly, the KSA factors were assessed in this study to understand budget preparers' awareness of accrual-based budgeting. By applying the IES, the following hypothesis was developed:

H1: Knowledge, skills and abilities (KSA) significantly influence accrual-based budgeting awareness.

2.2 Change Attitude

Change is one of the strategies organisations should undertake to adopt the accrual-based budgeting approach by focusing on sustainability, although the strategy is highly potentially ineffective without significant employee commitment (Olafsen, Nilsen, Smedsrud and Kamaric, 2021). Change is frequently unsuccessful when organisations immediately impose transformations before employees are mentally and emotionally prepared, thus negatively impacting employee commitment (Jones, Jimmieson and Griffiths, 2005) and resulting in abrupt change termination (Nilsen, Dugstad, Eide, Gullsllett and Eide, 2016). Moreover, increasing environmental dynamism, including local market environmental changes, alternative products and services demands, and product and service volume volatility, would require effective leadership to swiftly respond to the turbulence (Hoozée and Bruggeman, 2010; Surty and Scheepers, 2020). Therefore, examining the factors facilitating employees' adopting organisational changes is imperative, especially budget preparers' change attitude which is essential to accepting accrual-based budgeting implementation with a successful change (Armenakis, Harris and Mossholder, 1993; Kavaliauskaite and Jucevicius, 2010; Peach, Jimmieson and White, 2005; Vakola, 2014; Atan and Yahya, 2015).

Based on social cognitive and self-efficacy theory, Weiner (2009) proposed the organisational readiness for change theory comprising two components, namely change commitment and change efficacy. Change commitment refers to organisational members' obligation to accept the change, while change efficacy relates to the members' capability to implement the change. As such, organisational readiness for change is defined as organisational employees' shared resolution to implement a change (change commitment) and shared belief in the collective capability to adopt the change (change efficacy). Higher change efficacy would allow the organisation to accelerate the change implementation process (Ismail et al., 2018). Concurrently, when accountants are optimistic about the change, the employees would be highly prepared to implement accrual-based accounting and budgeting (Mosuin, Mat, Ghani, Alzeban and Gunardi, 2019). Public accountants with private sector experience or who have employed accrual

accounting and budgeting would generally exhibit a positive attitude toward the accrual system, compared to public sector accountants with expertise in cash accounting or budgeting (Blidisel and Tudor, 2007; Mahadi, Noordin, Mail and Sariman, 2014; Mosuin et al., 2019). Although certain staff who are accustomed to cash accounting and budgeting might resist the accrual-based accounting system (Mahadi et al., 2014), the government could re-educate the accountants.

Organisational management could further reduce the resistance factors with pertinent efforts to expedite change (Angonese and Lavarda, 2013). Resistance to change is both rational and complex (Busco, Quattrone and Riccaboni, 2007; Scapens and Roberts, 1993), as the change process is perceived to be difficult in adopting the alternative system during the transition process, owing to high familiarity with the current system (Goncalves and Sapateiro, 2008). The situation generally occurs when employees are not aware of and well-trained in the alternative system with the required knowledge, exposure, and clear implementation guidelines. Governments should comprehend the underlying factors to mitigate resistance to embracing change. The current literature review also discovered an existing gap in examining change attitude to predict accrual-based budgeting awareness. Through the organizational readiness to change theory, this study examined change attitude in influencing the awareness of accrual-based budgeting. Organisational readiness for change was hypothesised to motivate employees in seeking accrual-based budgeting knowledge to be more aware of the subject matter. Thus, a relevant hypothesis was developed as follows:

H2: Change attitude significantly influences accrual-based budgeting awareness.

2.3 Training

Training is implemented to facilitate the learning process involving the immediate or short-term application of acquired knowledge, abilities, and attitudes associated with learners' cognitive and behavioural characteristics (Kraiger, Ford, and Salas, 1993). As a cognitive ability, awareness plays a significant role in shaping learners' sentiments and perceptions of a particular idea, concept, or scenario, which requires organisational training programmes to be isolated from profit maximisation and performance objectives (Silberman, Biech and Auerbach, 2015). Nonetheless, an insignificant association between training and organisational profit might render training courses without adequate relevancy for participants to fail in achieving the stipulated objectives. Hence, assessing the need for training types and participants before designing relevant courses could increase the linkage and applicability.

Training is a fundamental action in developing human resources with knowledge skills required for the organisation via effective instruction and practice. Training is an important mechanism to improve employees in effectively and efficiently performing job duties. Correspondingly, appropriate educational and training platforms would assist employees in resolving reformation challenges, including human behaviours, technologies and systems, top management support, and other external issues, during the early stages of accrual-based

budgeting implementation (Ahmad et al., 2014; Alsalamah and Callinan, 2021; Cahapay, 2021). In addition, organisations should transfer knowledge and skills from other nations, especially from the early adopters of accrual-based budgeting (Mahadi et al., 2014). The transfer and collaboration with relevant training would enhance the timely delivery of public services, improve organisational culture, adopt effective accrual budgeting practices, and optimise human resources (Khan, 2018).

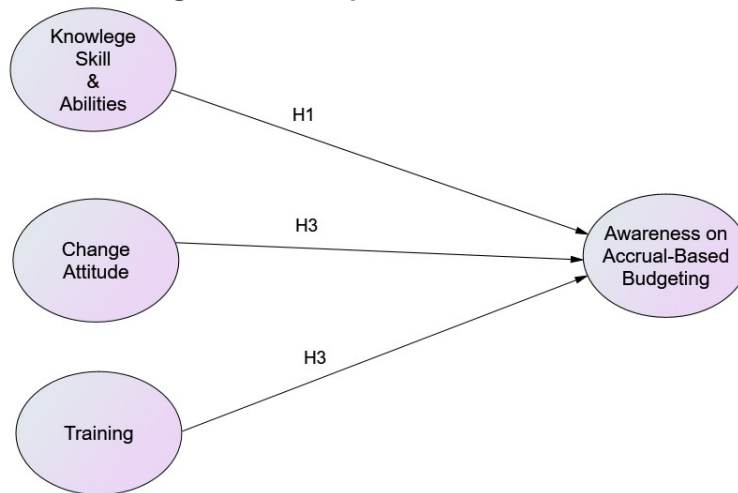
The Malaysian government must provide specific training programmes to enhance budget preparers' KSA, increase accrual-budgeting awareness, and realise the implementation goal in the public sector (Diamond, 2006; Monteiro and Gomes, 2013; OECD, 2002). Despite extensive literature regarding training in the general accounting field, the literature on training related to accrual-based budgeting awareness remains deficient. Nonetheless, conventional training programmes could serve as a reference for training in accrual-based budgeting. For example, Lownie and McQuarrie (2014) explored an alternative model of classroom delivery and instruction by referring to the format of soccer team training sessions, wherein the instructor was facilitating, flexible, and responsive by allowing students to learn independently. The students would perceive more comfortable in groups with more interactive lectures before subsequently improving performance and gaining experience. As such, technology implementation, such as applying artificial intelligence in accounting, could be facilitated by incorporating innovative elements into the conventional training courses to reduce existing accountants' resistance levels in embracing the accrual-based budgeting system (Shaffer, Gaumer and Bradley, 2020) while accommodating the volatile market demands. The current study employed Kirkpatrick's (1998) four-level evaluation model, which was widely applied in past studies to assess organisational training and development programmes. Numerous organisations also adapted Kirkpatrick's model to different training environments due to high accessibility and adaptability (Alsalamah and Callinan, 2021). The model provides an efficient and systematic tool for organisations to evaluate apprenticeship, employee training output, and the organisational system transformation (Alsalamah and Callinan, 2021; Cahapay, 2021). Kirkpatrick's model encompasses the following four levels. Level 1 is Reaction, which measures participants' satisfaction and interest in the training programmes, while Level 2 is Learning, which appraises the extent of skills and knowledge gained. Level 3 is Behavioral, which assesses trainees' ability to apply learned knowledge and skills in the workplace, whereas Level 4 is Results, which determines the training effect on the organisation. Nevertheless, this study only measured training at Level 1 (Reaction) and Level 2 (Learning) among Malaysian public sector budget preparers to gauge accrual-based budgeting awareness. The findings would fill the gap posed by limited studies on the relevant topic by investigating the third hypothesis:

H3: Training significantly influences accrual-based budgeting awareness.

2.4 Conceptual Framework

A conceptual framework was established based on the literature gap and developed hypotheses. Figure 1 depicts the KSA, change attitude, and training as the independent variables (H1, H2, and H3) with accrual-based budgeting awareness as the dependent variable.

Figure 1: Conceptual Framework



3.0 Methodology

The present study employed a quantitative research methodology, specifically the deductive approach, to measure the collected data on study variables (KSA, change attitude, training, and accrual-based budgeting awareness) from respondents who were the public sector budget preparers (accountants and non-accountants). Due to the lockdown situation during the coronavirus disease (COVID-19) pandemic, the survey questionnaires were distributed online. Subsequently, multiple regression analysis was conducted to elucidate the relationships between the variables and assess the accuracy degree of description or prediction from the regression equation. The multiple linear regression model was mathematically computed as follows:

$$Y = \beta_0 + \beta_1\text{KSA} + \beta_2\text{Change} + \beta_3\text{Training} + \varepsilon$$

Notes. Y = Accrual-based budgeting awareness; β_0 = The model parameter; $\beta_0 - \beta_3$ = Estimates (regression coefficient); KSA = Knowledge, Skills and Abilities; Change = Change Attitude; Training = Training; ε = The error term associated with the model.

A 10-point interval scale was adopted to measure the awareness level of accrual-based budgeting influenced by the KSA, change attitude, and training to fulfil data assumptions of the parametric analysis. Two experts were invited to review the survey questionnaire prior to the pilot study. Before data collection, exploratory factor analysis (EFA) was performed on the 42 responses collected from the pilot study to verify the dimensions of the questionnaire items and assess the internal reliability of the study constructs. The study disseminated 300 questionnaires to the targeted Malaysian government sector budget preparers via convenience sampling. The questionnaire instructed the respondents to rate each item on a 10-point scale respectively. Invitation letters were also distributed together with the questionnaires to explicate the study objectives, data collection methods, potential contributions, and potential applications, while reassuring respondents' data privacy and confidentiality. The final number of returned and completed questionnaires was 174, which represented a response rate of 58%. Subsequently, all 174 responses were screened before subjecting to correlation and regression analyses via the statistical package for the social sciences i. e. IBM SPSS AMOS 21.

3.1 Pilot Study

A pilot study was conducted to develop, modify, and examine the study technique feasibility, establish the measurement reliability, and calculate the final sample size. The data collected in the pilot study employed a similar approach to the actual data collection stage. Forty two (42) responses were collected from selected budget preparers, wherein the findings demonstrated well-designed research directions in terms of inquiry, layout, and time with a Cronbach's alpha value exceeding 0.6 in the four study variables.

3.2 Data Reduction Procedure via Exploratory Factor Analysis (EFA)

Principal component factor analysis (PCA) with the varimax rotation for all items under each variable was performed. Table 1 portrays that Bartlett's sphericity test was significant (chi-square, $p < .001$). The data were cleaned whereby responses with missing value were removed from the analysis. Meanwhile, the Kaiser-Meyer-Oikin (KMO) standard stipulated that the sampling adequacy measure should be above 0.60. With the result indicating that the KMO value approaching 1.0 and the p-value of Bartlett's sphericity test below .001, the pilot study data could be further proceeded with the reduction procedure by performing the EFA using SPSS software. Nonetheless, the EFA findings revealed that several items scored below 0.60. The items should be removed from further review.

Table 1: The KMO Sampling Adequacy Measure and Bartlett's Sphericity Test

Construct	The KMO Sampling Adequacy Measure	Bartlett's Sphericity Test		Significance
		Approximate Chi-square Value	df	
Accrual Budgeting Awareness	.871	493.678	45	.000
Knowledge, Skills and Abilities	.687	2,414.752	528	.000
Change Attitude (Commitment, Efficacy, and Valence)	.834	1,889.639	325	.000
Training (Reaction and Learning)	.852	1,055.866	105	.000

3.3 Reliability Analysis

Internal reliability for each construct component was appraised by discovering Cronbach's alpha value, which should be greater than 0.7 to achieve acceptable reliability. Table 2 illustrates that Cronbach's alpha values for all components range between 0.925 and 0.978, hence satisfying the required threshold with all values exceeding 0.7. The survey questionnaire was subsequently modified based on the EFA results before proceeding with actual data collection.

Table 2: Reliability Statistics of Construct Components and Variables

Construct	Component	Cronbach's Alpha Value	Cronbach's Alpha Value for Standardised Items	Item Number
Awareness		.957	.959	9
	Knowledge	.972	.972	9
KSA	Skills	.978	.980	16
	Abilities	.925	.928	5
Change	Commitment	.961	.965	9
	Efficacy	.977	.988	4
	Valence	.978	.980	9
Training	Reaction	.971	.976	10
	Learning	.943	.944	5

4.0 Findings and Discussion

4.1 Descriptive Analysis

Descriptive statistics allow data tabulation on accrual-based budgeting awareness to be meaningful and understandable. Before performing the multiple regression analysis, accrual-based budgeting awareness descriptive statistics were generated by scrutinising the means, standard deviations, minimum levels, and maximum levels of each variable. Table 3 depicts the descriptive statistics relating to accrual-based budgeting awareness, with Panel A reporting all respondents' demographic profiles while Panel B provides descriptive statistics for the study variables. The demographic variables include gender, age group, educational level, job position, and working sector in public organisations. Specifically, 119 respondents (68.4%) were females, with 111 budget preparers (63.8%) being 46 years old and above while 141 respondents (81.0%) were Bachelor's degree holders. 75.3% of the respondents belonged to the management and professional group, with a majority (81.6%) working for the federal government, followed by 7.5% in the state government, 4.0% in the local government, and 3.4% respectively in the statutory bodies and other sectors. Meanwhile, the mean of the variable accrual-based budgeting awareness was discovered as 6.93, while the minimum and maximum levels were 1.22 and 10.00 respectively. The results manifested high awareness of accrual-based budgeting, which was consistent with Ahmad et al. (2014) discovering high awareness of the migration process to accrual accounting. Similarly, Ismail et al. (2018) revealed that public sector accountants were highly committed to accrual accounting with high capacity and readiness to implement the accrual accounting system.

Table 3: Descriptive Statistics

Panel A: Respondents' Demographic Profiles					
	Demographic Profile	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Gender	Female	119	68.4	68.4	68.4
	Male	55	31.6	31.6	100.0
Age	26 – 35 years old	9	5.2	5.2	5.2
	36 – 45 years old	54	31.0	31.0	36.2
	46 years and above	111	63.8	63.8	100.0
Educational Level	Diploma	11	6.3	6.3	87.4
	Bachelor Degree	141	81.0	81.0	81.0
	Master	18	10.3	10.3	97.7
	Professional Qualification	4	2.3	2.3	100.0
Job Position	Management and Professional	131	75.3	75.3	75.3
	Supporting Group	8	4.6	4.6	100.0
	Others	35	20.1	20.1	95.4

Demographic Profile		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Working Sector	Federal Government	142	81.6	81.6	81.6
	Local Government	7	4.0	4.0	85.6
	State Government	13	7.5	7.5	93.1
	Statutory Bodies	6	3.4	3.4	96.6
	Others	6	3.4	3.4	100.0

Panel B: Descriptive Statistics of Continuous Variables

Variable	Minimum	Maximum	Mean	Standard Deviation	Median
Awareness	1.22	10.00	6.93	1.719	7.167
KSA	1.03	10.00	5.83	1.778	5.967
Change	1.30	10.00	6.53	1.754	6.544
Training	2.00	10.00	6.78	1.773	6.833

4.2 Hypothesis Testing

4.2.1 Pearson Correlation Analysis

Pearson (*r*) correlation coefficient analysis was conducted to examine the relationship strengths and directions between the KSA, change attitude, training, and accrual-based budgeting awareness. Table 4 illustrates significant positive correlations ($p < 0.01$) between the KSA, change attitude, training, and accrual-based budgeting awareness, with respective mean scores ranging from 5.834 to 6.929. The findings suggested that respondents perceived a high personal awareness level of accrual-based budgeting, with a strong belief in the accrual-based budgeting benefits positively influenced by the KSA, change attitude, and training to support the transition process. The current findings were consistent with Palmer et al. (2004) who discovered that the KSA components, namely communication skills, interpersonal skills, general business knowledge, accounting skills, problem-solving skills, information technology skills, personal attitudes and capabilities, and computer skills, significantly elevated awareness. Furthermore, the current finding of the significant positive correlation between change attitude and accrual-based budgeting awareness corresponded with Mosuin et al. (2019), who demonstrated high readiness to implement the accrual accounting system when accountants exhibited a positive attitude toward change attitude due to the perceived benefits. Concurrently, training positively influenced the awareness of accrual-based budgeting, as supported by previous studies (Atan and Yahya, 2015; Mohd Ali, Abdullah, Ab Majid, Basri and Noor Minhad, 2020; Mosuin et al., 2019).

Table 4: Study Variable Correlations

		Awareness	KSA	Change	Training
Awareness	Pearson Correlation	1.000	.700 **	.705 **	.674 **
	Sig. (2-tailed)		.000	.000	.000
	N	174	174	174	174
KSA	Pearson Correlation	.700 **	1.000	.725 **	.658 **
	Sig. (2-tailed)	.000		.000	.000
	N	174	174	174	174
Change Attitude	Pearson Correlation	.705 **	.725**	1.000	.830 **
	Sig. (2-tailed)	.000	.000		.000
	N	174	174	174	174
Training	Pearson Correlation	.674 **	.658**	.830 **	1.000
	Sig. (2-tailed)	.000	.000	.000	
	N	174	174	174	174

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

4.3 Regression Analysis

Issues, such as normality, multicollinearity, homoscedasticity, and linearity of residuals, were addressed before the regression analysis. While the KSA data was normally distributed without measurement and specification errors, the other three variables (awareness, change attitude, and training) were normalised to fulfil the data assumptions before performing the multiple regression analysis. Data normality could be determined by examining skewness and kurtosis, via the K-S Lillefour test or Shapiro-Wilk test. A significant Shapiro-Wilk (W) statistic ($Sig < .05$) would indicate that the data were not normally distributed (Allen, Bennett and Heritage, 2014). Accordingly, the Shapiro-Wilk test manifested insignificant results for all four study variables, namely the KSA, change attitude, training, and awareness at 0.547, 0.274, 0.942, and 0.879 respectively, therefore suggesting that all variables were normally distributed.

According to Gujarati (2003), multicollinearity might indicate a critical problem when two regressors, either pairwise or zero-order, possessed correlation coefficients above 0.80. The variance inflation factors (VIFs), which reflect the multicollinearity problem, should not surpass the value of 10 to ensure that multicollinearity would not impact the least squares estimates (Gujarati, 2003; Neter, Wasserman, and Kutner, 1985). A multicollinearity problem could also occur if the tolerance of the independent variable was below 0.1 (Norusis, 2008). In this study, the VIFs of all three variables (KSA, change attitude, and training), were 2.134, 3.823, and 3.232 respectively, hence propounding no multicollinearity problem. Subsequently, the data residuals were analysed by plotting the studentised residuals against the predicted values to assume homoscedasticity (constant variance). When the residuals randomly disperse without a distinct shape or pattern around a horizontal line through the value of zero, the variance

of predictors at each level would be constant, which suggests the equal variance hypothesis is valid (Norusis, 2008). Meanwhile, the inequality in the residual variance of each predictor might reflect a heteroscedasticity problem (Field, 2009).

The linearity assumption is achieved when the plots are positioned around a straight line. When plotting a dependent variable against an independent variable, a curve that exists in the plot might postulate the linearity assumption not being achieved (Norusis, 2008). Additionally, the mean value of each predictor must be linear (Field, 2009; Norusis, 2008). As such, the scatterplot of standardised residuals against standard predicted values was employed by the current study to assess the assumptions of normality, linearity, and homoscedasticity of residuals. The absence of distinctive patterns in the spread of points posited the fulfilment of data normality, linearity, and homoscedasticity.

Table 5 portrays that the three independent variables (KSA, change attitude, and training) significantly influence the dependent variables (accrual-based budgeting awareness). The findings demonstrated that the KSA t-value was 5.131 ($p < 0.001$), which indicated a significant positive relationship between the KSA and budget preparers' accrual-based budgeting awareness. Furthermore, the change attitude t-value was 2.609 ($p = 0.004$), which demonstrated a significant positive relationship between change attitude and budget preparers' awareness of accrual-based budgeting. Meanwhile, the training t-value was 2.451 ($p = 0.013$), thus discovering a significant positive relationship between training and budget preparers' awareness of accrual-based budgeting. Resultantly, all hypotheses H1, H2, and H3 were accepted.

Table 6: Regression Coefficients

Model	Unstandardised Coefficients		Standardised Coefficients	t-value	Significance
	B	Standard Error	Beta		
(Constant)	-.086	.049	N/A	- 1.771	.078
KSA	.060	.011	.371	5.255	.000
Training	.234	.094	.236	2.506	.013
Change Attitude	.250	.086	.252	2.902	.004
Standard error		0.181			
F-value		86.414			
Significance F-value		0.000 ***			
Adjusted R-squared		0.597			

Notes. *** Significant at the 0.01 level (two-tailed); Dependent variable = Awareness of accrual-based budgeting; N/A = Not Applicable.

5.0 Discussion

The present study identified and proposed the antecedent factors influencing budget preparers' accrual-based budgeting awareness, while appraising the respective relationships of the three factors with accrual-based budgeting awareness in the Malaysian public sector. The findings demonstrated that the KSA, change attitude, and training possessed significant positive relationships with accrual-based budgeting awareness, which bridged the existing literature gap due to limited past studies on the relevant topic. Contemporarily, one primary challenge in implementing accrual accounting is the lack of skilled financial experts, especially staff with the knowledge to shift to the accrual system (Arshad et al., 2013). Similarly, knowledge is significant and required for budget preparers to assist in implementing accrual-based budgeting with a sufficient understanding of the purpose, advantages, and drawbacks. Moreover, the required skills and capabilities encompass communication, analytical, interpersonal, and technical skills (Barac, 2009; Palmer et al., 2004) to participate in the planning, preparation, negotiation, and monitoring of accrual-based budgeting activities.

Change attitude in the current study refers to budget preparers' shifting from cash-based to accrual-based budgeting, in which the finding revealed that commitment, efficacy, and valence were significant to the transition process. Ismail et al. (2018) also discovered that change attitude significantly influenced organisational and employee readiness to implement the accrual accounting system. In addition, implementing change is required to be comprehensive and executed at all levels during accrual-based budgeting adoption, including a paradigm shift in management to ensure a systematic approach in expediting organisational transformation (Mahadi et al., 2014). Simultaneously, employee participation and leadership would also influence the change outcome (Hoozée and Bruggeman, 2010). When budget preparers are optimistic about accepting the change, high preparedness will be exhibited to adopt accrual-based accounting and budgeting (Mosuin et al., 2019).

Training is defined in this study as educational activities within a public sector organisation to enhance budget preparers' knowledge and skills while providing pertinent accrual-based budgeting information and instruction. The current study measured training based on Kirkpatrick's (1998) model at two levels, namely Reaction (Level 1) and Learning (Level 2). The results propounded that budget preparers were required to comprehensively understand the training objectives, content, theory, and practice regarding accrual-based budgeting before participating in the programmes. Moreover, Ahmad et al. (2014) proposed that the education and training platforms would assist budget preparers in resolving reformation challenges, particularly during the early stages of elevating accrual-based budgeting awareness and readiness before implementation. As such, the most vital prerequisite for successfully implementing accrual-based budgeting would be the development of robust training programmes (Diamond, 2006; Mahadi et al., 2014; Monteiro and Gomes, 2013) to improve the relevant skills of existing accountants who were trained in cash accounting (OECD, 2002).

Budget preparers' accrual-based budgeting awareness refers to the existing knowledge about or understanding of accrual-based budgeting based on received information or experience. The findings revealed that budget preparers were aware of the accrual-based budgeting concept in terms of preparing accrual accounting records and measures in the budgeting process, which were concurrent with prior studies (Ahmad et al., 2014; Atan and Yahya, 2015; Mohd Ali et al., 2020; Mosuin et al., 2019). In addition, the respondents exhibited positive behaviour toward accrual-based budgeting due to the perceived adoption benefits, including increased transparency on public service expenditures, improved accountability, pertinent budget allocation, and effective resource management. Summarily, accrual-based budgeting allows the government to optimally regulate national expenses in the future.

6.0 Conclusion

The current study contributed to the existing knowledge corpus by discovering budget preparers' awareness of accrual-based budgeting implementation in the public sector. Empirical evidence on antecedent factors affecting budget preparers' awareness was provided, which filled the literature gap posed by a scarcity of relevant studies. The present study also generated valuable insights into the factors positively influencing accrual-based budgeting awareness. Particularly, the positive association between the KSA and accrual-based budgeting awareness suggested that the KSA was integral to adopting the accrual system. Hence, the finding advocated the government to employ staff with relevant technical knowledge and skills to inform and train existing employees in different ministries and politicians on the alternative budgetary system. Meanwhile, existing accountants and financial managers would be required to undertake upskilling, as certain budget preparers might not possess the necessary expertise in accrual accounting concepts and principles. Nonetheless, existing budget preparers remain essential to successfully implementing accrual-based budgeting, due to their institutional knowledge regarding the budgeting process and policy issues (Khan, 2013).

The lack of change agents would impede the adoption of accrual-based budgeting, as change agents are important in overcoming barriers to effectively implementing a reformation in organisational culture (Blondy, Cooper, Irwin, Kauffmann, and Khan, 2013). The change must also be actively promoted, especially among policymakers and senior officers (OECD, 2002). Accordingly, the National Budget Office (NBO) could be the critical agent of change (Diamond, 2006), in which change management skills would be fundamental to an alternative budgetary system to continue reformation efforts by adhering to the implementation plan while adapting to environmental contingencies and alterations (Diamond, 2006). Moreover, training would also be a significant component during the accrual-based budgeting implementation. Similar to the MBS, cultural change necessitates re-education and retraining for staff to ensure successful implementation (Mahadi et al., 2014; Monteiro and Gomes, 2013).

The study revealed consequential benefits to the Malaysian government and other emerging economies considering moving toward an accrual-based budgeting system. Theoretically, the present study contributed significantly to Weiner's (2009) theory of organisational readiness for change by providing empirical evidence to the theory and Kirkpatrick's model (1998) regarding training, while highlighting the IES importance to acquire adequate KSA in enhancing awareness of accrual-based budgeting adoption in the Malaysian public sector. Nevertheless, the study limitation is the unequal sample representation of government sectors or organisations when most respondents were employed by the federal government, as the data were collected online due to the COVID-19 pandemic. Future research could consider recruiting equal numbers of respondents from the local government, state government, and statutory bodies to achieve more robust findings.

References

- Accountants Today (2011). *The case for accrual accounting*, Malaysian Institute of Accountants. Kuala Lumpur, pp. 6-10.
- Ahmad, N. N., Ahmad, S., and Mohamed, Z. S. S. (2014). Key critical factors of the users' awareness towards migration of accounting practices. *IPN Journal*, 4(1), 25–36.
- Allen, P., Bennett, K., and Heritage, B. (2014). *SPSS Statistics Version 22* (3rd ed.). Melbourne, Australia: Cengage Learning Australia Pty Limited.
- Alsalamah, A., and Callinan, C. (2021). The Kirkpatrick model for training evaluation: bibliometric analysis after 60 years (1959–2020). *Industrial and Commercial Training*, Vol. No. ahead-of-print. <https://doi.org/10.1108/ICT-12-2020-0115>
- Angonese, R., and Lavarda, C. E. (2013). Analysis of the factors affecting resistance to changes in management accounting systems. Paper presented at the VII ANPCONT Congress, Fortaleza, CE, Brazil, June 2013. *Revista Contabilidade & Finanças* [online]. 2014, pp. 214-227. ISSN1808-057X. <https://doi.org/10.1590/1808-057x201410810>
- Armenakis, A. A., Harris, S. G., and Mossholder, K. W. (1993). Creating readiness for organizational change. *Human Relations*, 46(6), 681–703. <http://dx.doi.org/10.1177/001872679304600601>
- Arshad, R., Omar, N., and Awang, S. F. (2013). Moving from rule-based to principle-based in Public Sector : preparers' perspective. *International Journal of Social, Behavioral, Educational, Economic and Management Engineering*, 7(2), 606–610.

- Atan, R., and Yahya, F. M. (2015). Accrual accounting change: Malaysian public sector readiness. *Journal of Management Research*, 7 (2), 1 – 9.
- Athukorala, S. L., and Reid, B. (2003). *Accrual Budgeting and Accounting in Government and its Relevance for Developing Member Countries*. Manila, Philippines: Asian Development Bank.
- Azmi, A. H., and Mohamed, N. (2014). Readiness of Malaysian public sector employees in moving towards accrual accounting for improve accountability: The case of Ministry of Education (MOE). *Procedia – Social and Behavioral Sciences*, 164, 106 - 111.
- Barac, K. (2009). South African training officers' perceptions of the knowledge and skills requirements of entry-level trainee accountants. *Meditari Accounting Research*, 17(2), 19–46.
- Blidisel, R., and Tudor, A. T. (2007). Accrual accounting experience in the Romanian public higher education sector. *MPRA Munich Personal RePEc Archive*, 1–11.
- Blondy, G., Cooper, J., Irwin, T., Kauffmann, K., and Khan, A. (2013). The role of fiscal Reporting in Public Financial Management. In *Public Financial Management and Its Emerging Architecture*. Washington D. C.: International Monetary Fund. (pp. 259–281).
- Brink, W. D., and Stoel, M. D. (2016). Analytics knowledge, skills, and abilities for accounting graduates. In *Advances in Accounting Education: Teaching and Curriculum Innovations* (pp. 23–43). <https://doi.org/10.1108/s1085-462220160000018013>
- Busco, C., Quattrone, P., and Riccaboni, A. (2007). Management accounting: issues in interpreting its nature and change. *Management Accounting Research*, 18(2), 125-149.
- Cahapay, M.B. (2021). Kirkpatrick model: its limitations as used in higher education evaluation. *International Journal of Assessment Tools in Education*, 8(1), 135-144.
- Diamond, J. (2006). *Budget System Reform in Emerging Economies: The Challenges and the Reform Agenda*. Washington D. C.
- Field, A. (2009). *Discovering Statistics Using SPSS* (3rd ed.). London: SAGE.
- Gonçalves, N. P., and Sapateiro, C. M. (2008). Aspects for information systems implementation: challenges and impacts. A higher education institution experience. *Tékhné-Revista de Estudos Politécnicos*, 9, 225-241.

- Gujarati, D. D. (2003). *Basic Econometrics* (4th ed.). New York: McGraw-Hill.
- Hansma, L., and Elving, W. J. (2008). Leading organizational change: the role of top management and supervisors in communicating organizational change. *Therapeutic Drug Monitoring*, May, 1–36. <http://hdl.handle.net/11245/2.62840>
- Hiatt, J. M. (2006). *The Essence of ADKAR : A Model for Individual Change Management*. Yashada. Org, 2006.
- Hoozée, S., and Bruggeman, W. (2010). Identifying operational improvements during the design process of a time-driven ABC system: The role of collective worker participation and leadership style. *Management Accounting Research*, 21(3), 185–198. <https://doi.org/10.1016/j.mar.2010.01.003>
- Ismail, S., Siraj, S. A., and Baharim, S. (2018). Implementation of accrual accounting by the Malaysian Federal Government. Are the accountants ready? *Journal of Accounting & Organizational Change*, 14 (2), 234 - 247.
- Jones, R.A., Jimmieson, N.L., and Griffiths, A. (2005). The impact of organizational culture and reshaping capabilities on change implementation success: the mediating role of readiness for change. *Journal of Management Studies*, 42(2), 361-386.
- Kavaliauskaite, V., and Jucevicius, R. (2010). Readiness of public institutions for contracting. *Economics and Management*, 15, 587–596.
- Khan, A. (2013). Accrual budgeting: opportunities and challenges. In M. Cangiano & M. Curristine, TeresLazare (Eds.), *Public Financial Management and Its Emerging Architecture* (pp. 339–358). International Monetary Fund.
- Khan, M. H. (2018). PT SC. Structural Change and Economic Dynamics. <https://doi.org/10.1016/j.strueco.2018.05.006>
- Kirkpatrick, D. L. (1998). *Another Look at Evaluating Training Programs*. (Accessed on August 21, 2021, from <http://common.books24x7.com/toc.aspx?bookid=3705>).
- Kraiger, K., Ford, J. K., and Salas, E. (1993). Application of cognitive, skill-based, and affective theories of learning outcomes to new methods of training evaluation. *Journal of Applied Psychology*, 78(2), 311–328. <https://doi.org/10.1037/0021-9010.78.2.311>
- Lownie, K., and McQuarrie, F.A.E. (2014), Applying the principles of soccer training to the design and delivery of classes in introductory accounting courses. *Account Perspect*, 13: 83-98. <https://doi.org/10.1111/1911-3838.12025>

- Mahadi, R., Noordin, R., Mail, R., and Sariman, K. (2014). Accrual accounting in Malaysia: what we should learn from others. *Malaysian Journal of Business and Economics*, 1(2), 63–76.
- Merriam-Webster Online Dictionary. (2022). (Accessed on November 11, 2022, from <https://www.merriam-webster.com/dictionary>).
- Mohd Ali, N. A., Abdullah, Z., Ab Majid, R., Basri, S. A., and Noor Minhad, S. F. (2020). Implementation of accrual accounting : evidence from public sector Accounting Department officers in Malaysia. In *Proceedings of the 1st International Conference on Applied Social Sciences, Business, and Humanity, ICo-ASCNITY*,. Padang, West Sumatra, Indonesia. <https://doi.org/10.4108/eai.1-11-2019.2293993>
- Monteiro, B. R. P., and Gomes, R. C. (2013). International experiences with accrual budgeting in the public sector. *Revista Contabilidade & Finanças - USP*, 24(62), 103–112. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=91510919&site=ehost-live>
- Mosuin, E., Mat, T. Z. T., Ghani, E. K., Alzeban, A., and Gunardi, A. (2019). Accountants' acceptance of accrual accounting systems in the public sector and its influence on motivation, satisfaction and performance. *Management Science Letters*, 9(5), 695–712. <https://doi.org/10.5267/j.msl.2019.2.002>
- Neter, J., Wasserman, W., and Kutner, M. H. (1985). *Applied Linear Statistical Models: Regression, Analysis of Variance, and Experimental Designs* (2nd. ed.). Illinois: Richard D. Irwin.
- Nilsen, E.R., Dugstad, J., Eide, H., Gullstett, M.K. and Eide, T. (2016), Exploring resistance to implementation of welfare technology in municipal healthcare services – a longitudinal case study. *BMC Health Services Research*, 16(1), 657.
- Norusis, M. J. (2008). *SPSS Statistics 17.0 Guide to Data Analysis*. New Jersey: Prentice-Hall.
- OECD/IFAC. (2017). *Accrual Practices and Reform Experiences in OECD Countries*. Paris: OECD Publishing. <https://doi.org/10.1787/9789264270572-en>
- OECD. (2002). *Accrual Accounting and Budgeting: Key Issues and Recent Developments*. Paris.

- Olafsen, A.H., Nilsen, E.R., Smedsrud, S. and Kamaric, D. (2021). Sustainable development through commitment to organizational change: the implications of organizational culture and individual readiness for change, *Journal of Workplace Learning*, 33 (3), 180-196. <https://doi.org/10.1108/JWL-05-2020-0093>
- Palmer, K. N., Ziegenfuss, D. E., and Pinsker, R. E. (2004). International knowledge, skills, and abilities of auditors/accountants: evidence from recent competency studies. *Managerial Auditing Journal*, 19(7), 889–896. <https://doi.org/10.1108/02686900410549411>
- Peach, M., Jimmieson, N. L., and White, K. M. (2005). Beliefs underlying employee readiness to support a building relocation: a theory of planned behavior perspective. *Organization Development Journal*, 23(3), 9–22.
- Scapens, R. W., and Roberts, J. (1993). Accounting and control: a case study of resistance to accounting change. *Management Accounting Research*, 4(1), 1-32.
- Shaffer, K.J., Gaumer, C.J., and Bradley, K.P. (2020). Artificial intelligence products reshape accounting: time to retrain. *Development and Learning in Organizations*, 34(6), 41-43. <https://doi.org/10.1108/DLO-10-2019-0242>
- Silberman, M., Biech, E., and Auerbach, C. (2015). Assessing Training Needs. In *Active Training* (eds M. Silberman, E. Biech and C. Auerbach). <https://doi.org/10.1002/9781119154778.ch1>
- Surdy, S., and Scheepers, C. B. (2020). Moderating effect of environmental dynamism on leadership practices and employees' response to change in South Africa. *Management Research Review*, 43(7), 787–810. <https://doi.org/10.1108/MRR-03-2019-0094>
- Vakola, M. (2014). What'd is there for me? Individual readiness for change and the perceived impact of organizational change. *Leadership & Organization Development Journal*, 35(3), 195–209. <http://dx.doi.org/10.1108/LODJ-05-2012-0064>
- Weiner, B.J. (2009). A theory of organizational readiness for change. *Implementation Science*, 4(1), 67.
- Wessels, P. L. (2005). Critical information and communication technology (ICT) skills for professional accountants. *Meditari: Research Journal of the School of Accounting Sciences*, 13(1), 87-103.

Yusof, N. S., & Jaafar, H. (2018). The implementation of accrual-based accounting in Malaysian public sector: opportunities and challenges. *International Business Education Journal*, 11(1), 49–62. <https://doi.org/10.37134/ibej.vol11.1.5.2018>

