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The Performance and Signalling Process of Initial Public Offers in Malaysia: 1980-1996

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Keywords: Initial public offers, signalling, underpricing

ABSTRAK

Di Malaysia, saham-saham yang baru disenaraikan, pada kebiasaannya, mengalami proses penilaian harga di bawah paras harga sebenar berbanding dengan harga tawaran di lain-lain pasaran membangun dan sedang membangun. Hasil kajian ini mendapati purata pulangan luar biasa untuk hari pertama urusniaga adalah 135 peratus. Hari-hari berikutnya purata pulangan luar biasa merosot sedikit sebelum meningkat semula ujian "signalling" mendapati risiko ex-ante boleh menghuraikan paras "underpricing" di Malaysia.

ABSTRACT

Malaysian IPOs are, on average, substantially underpriced compared to underpricing in other emerging and developed market. The findings of this study suggest that this average abnormal return on the frist trading day is 135 percent, after which the returns decline slightly in the first week and gradualy increase thereafter. A test on possible signalling attributes of new issues to potential investors reveal that of all the suggested determinants, the ex-ante risk factor seems to explain the level of underpricing.

INTRODUCTION

Initial Public Offers (IPOs) or new issues of shares refer to the sale of ordinary shares to the public by previously closely held companies. New issues are avidly followed by public as short-term investment in Malaysia as most believe (with good evidence in the last 15 years) that such issues are substantially underpriced and would thus provide large returns at minimum risk. Over-subscription of most new issues also supports this belief as well. IPOs tend to be oversubscribed, on average about 46 times (Dawson 1987; Yong 1991), and many investors are unable to purchase shares at the offering price. Most buy from the stock exchange at the market price. Therefore secondary market performance is important to investors and it also sheds light on possible deviations between offer price and the first day market price.

An increase in the secondary market price will, for example, indicate that the initial price is understated. Companies resort to listing in public exchanges to refinance their expansion and to obtain less costly sources of new funds. When owners of a company have a considerable amount of wealth invested in the enterprise, and are interested to diversify their portfolios to add liquidity to their investments, they usually go public. Listing is a prelude to a longer-term push for expansion using the funds generated by IPO and then via rights and debt issues. However, the motive for seeking efficient source of financing through IPO is to take advantage of positive net present value investment opportunities by committing funds from new issues as real future investments.

The process of listing is quite involved in the emerging Malaysian market compared with developed markets. The Malaysian IPOs are authenticated by the Securities Commission, which examines and approves listing applications. The proposed issue price of the issuing company as determined by merchant bank(s) are often

varied by the approving authorities. No prospectus of any kinds is issued before all the approvals are in, following which public announcement is made for inviting applications with prepayments. Balloting and allocation of share are vetted by either one of available two issuing houses and listing is usually done a month after close of application. Only investors who bought shares at the offer price earn substantial returns over their investment. Second, the market may initially overprice the IPOs in the midst of public enthusiasm based on widespread belief of underpricing and over-subscription. Subsequently, the market corrects the overreaction and the market price will adjust downward to its true intrinsic value.

Third, the initial price increase in IPOs will be followed by a continuing price rise, which implies that the initial price increase does not fully reflect the amount of underpricing. An explanation for this behaviour is that underpricing creates demand for share which is self-generating. This view contradicts the efficient market hypothesis.

In Malaysia, Dawson (1987) reported positive initial gross returns of 166 percent on 21 New issues for the period 1978 to 1983. These returns declined over time, although price changes were still positive and increased at a smaller rate than the initial pricing. A more recent study by Yong (1991) on the behaviour of 33 new issues in Malaysia for the period 1983 to 1988 shows that the average return at the end of the first trading day is 167 percent but declines over time, consistent with Dawson's (1987) findings.

This study expands the previous IPO studies on the Malaysian market in terms of longer time period (1975 to 1996), larger sample size (100 firms) and document not only the short and long-run performance of IPO's but also examines the validity of Grinblatt-Hwang (1989) Signalling Model in the Malaysian IPO market.

REVIEW OF LITERATURE

Considerable research findings on pricing of IPOs in the developed (US, UK and Australia) and developing markets suggest an apparent underpricing. A summary of these studies is presented in Table 1.

It is reported that abnormal returns on day one are caused by investment banker's underpricing. Ibbotson (1975), Ibbotson *et al.*

TABLE 1
Summary of research findings on IPOs in developed and developing markets

Deveoped Market	Year of Study	Number of Issues Studied	Percentage Underpricing
US			
Ibbotson (1975)	1960-69	120	12.8
McDonald and Fischer (1972)	1969-70	148	28.5
Ritter (1984)	1977-82	1028	26.5
UK			
Buck, Herbert and Yeomens (1981)	1965-75	297	9.7
Australia			
Finn and Higham (1983)	1965-88	93	23
Developing Markets			
Malaysia			
Dawson (1987)	1978-84	21	166
Yong (1991)	1983-88	33	167
Singapore			
Dawson (1985)	1978-84	29	37.5
Koh, Loke, Phoon and Lim (1989)	1987-88	9	30.82

(1988) have documented that new issues are riskier than the average share in the market. Investment bankers therefore will try to reduce their risk and costs of underwriting by underpricing the issue. The persistent evidence of underpricing might also be due to the uncertainty about the real value of shares and the related need to offer investors compensation for assuming higher risk. However, Aggarwal and Ritter (1990) suggest that shares are issued at their instrinsic values and the prices are bid up by an overly optimistic market.

Baron (1982) assumes that investment bankers are better informed about investors demand for new issues, and therefore in most cases the issuing company delegates the pricing decision to them. However, the issuer compensates the banker for the use of his superior information by allowing the banker to offer new issues at a discount from the expected price after listing. Baron suggests that the discount is an increasing function of the issues' uncertainty about the market demand for new issues.

Rock (1986) explains the underpricing of IPOs using asymmetric information hypothesis. Rock suggests that the asymmetry of information is not between the issuer and their investment banker but between two groups of potential investors in the market: informed investors and uninformed investors. Rock posits that underpricing exits to lure uninformed investors who are uncertain about the value of the shares in the market and end up buying more of the overpriced issues and less of the underpriced issues compared to informed investors. Overtime, uninformed investors learn to anticipate this adverse selection and only bid if the offer price is far below their expected market price to compensate them for the expected losses of overpriced issues.

Underpricing of IPOs is also used as a signal of quality by firms with superior prospects. These firms signalled their expected good fortunes to the investors using a low IPO price and thus underprice the initial offering and make initial owners absorbed these "losses". This underpricing is a signal to investors that the issuer is a good performer and expects to cover the loss after their performance is realised. Good firms find it worthwhile to underprice their IPOs because it conditions investors to more favourably interpret subsequent financial results.

The speculative-bubble hypothesis also explains the excess returns of the IPO's. The speculative investors who could not get allocations of the oversubscribed new issues from the underwriters at the offering price or received fewer shares than they wanted will purchase additional shares after the secondary market trading begins. These purchases create a demand pressure after listing overprice new issues temporarily. This hypothesis implies that the initial positive excess returns of the IPOs should be followed by negative excess returns as the bubble bursts.

The Signalling Process of IPOs Using Grinblatt - Hwang Model

Grinblatt and Hwang (1989) developed a two-signals model (hereafter referred as GH) to explain the information asymmetry between the issuer who has better knowledge about the true value of his firm and outside investors who are uninformed. Firm value is assumed to be described by its future cashflows which may be measured by the expected value of cashflows (mean) and the dispersion of cashflows (variance). The two signals are needed to convey the firm's value because both mean and variance of the firm's cashflows are unknown. In the context of Leyland and Pyle's (1976) paper, the issuer signals the true value of the firm by retaining a proportion of the new issue, α, as the proportion of the equity to be retained, where α is > 0. Intuitively, it may be reasoned that by retaining a higher proportion of the total share capital, the issuer forgoes the diversification of his personal portfolio and thereby incurs signalling costs. Therefore, he will retain a significant ownership interest only if he expects the future cashflows to be high relative to current firm value, so rational investors will see the fraction of equity retained by the issuer as a signal of firm value. In a class of issuers with the same firm risk, a high-value firm is motivated to signal itself vis-á-vis a low-value firm by retaining a greater fraction of the total share capital. The marginal costs of signalling is lower for high-value firm and studies by Downes and Heinkel (1982) and Koh, Loke, Phoon and Lim (1989) corroborate this.

The second hyopothesis proposed by Grinblatt-Hwang model is that there is a positive relationship between the degree of underpricing and the level of ex ante uncertainty (proxied by

variance of returns) faced by investors. Beatty and Ritter (1984) and Rock (1986) provided evidence supporting this hypothesis.

Hwang (1988) has also suggested that high-value firms underprice their shares more than low-value firms knowing that they can recover what they give away at the IPOs when the true value of the firm is revealed after the issue date.

DATA AND METHODOLOGY

One hundred IPOs of Malaysian incorporated companies from the Industrial, Finance, Properties, Plantation and Tin sectors were chosen for the period 1980-1994. This allowed for the analysis of each IPO performance until 1996. Various issues of the Investors Digest, Daily Diary, and the company files from the Registrar of Companies were accessed for the required information. For each issue, the offer price and prices for the first day of trading, first week of trading, first month of trading, third month of trading, sixth month of trading and so on until the thirty-sixth month of trading are accumulated. The capitalisation and dividend adjusted price relative monthly data are used to calculate the rates of return for each issue. The New Straits Times (NST) Industrial Index is selected as the index of market performance because the industrial sector accounts more than two-thirds of the sample and more than 50% of market capitalisation of the Kuala Lumpur Stock Exchange (KLSE).

The effect of IPOs on the investors' wealth is estimated by computing holding period returns. An event study methodology is applied, with the listing date as day zero in event time. A period of 36 months after listing date is chosen to ascertain the long-run performance of the IPOs. The first day excess return, the short-run (up to 6 months) and long-run excess returns (from 7 to 36 months) are computed for each IPO. The first day return is computed by dividing the difference between closing price of the first trading day and the offer price with the offer price. This will proxy the degree of underpricing, D.

The event-study approach is well suited to address underpricing issue. The market-adjusted abnormal returns (AR) of each share (I=1, ...N) were calculated for different time periods using market returns from share market indices. The risk-adjustment procedure using market model risk parameters and market returns were not applied because of lack of historical time series of returns for new issues prior to their listing. Furthermore, Ariff and Johnson (1990) reports the relative superiority of market-adjustment procedure for calculating abnormal returns in the thinly-traded market where risk-adjustment made little difference.

$$AR = \frac{\Sigma[(Ri - E(R)]}{N}$$

where

AR : adjusted average returns
N : the number of firms i = 1...N analysed
Ri : rates of return of firm i at event time; and
E(R) : expected returns generated in two ways as described.

Multiple regression and correlation analyses are carried out to investigate the relationships proposed by the signalling hypothesis. The firm risk, σ^2, is proxied by the variance of the daily returns after listing. Firms size (FS) is measured by the product of the total number of shares outstanding and the offer price. The change in firm value, (ΔFV), is the percentage change in market capitalisation scaled by the ratio of the market index at the offer date and the listing date. Specifically, the change in firm value is computed by adjusting the percentage change in the market capitalisation between the offer date and the listing date by the change in the market index. The fractional holding of the issuer (or the insider shareholding), α is measured by the number of shares retained by the issuer divided by the total number of shares outstanding at the issue date.

HYPOTHESES TESTED

The following hypotheses on the performance and the signalling process of Malaysian IPOs are evaluated:

H_1 : The average first-day abnormal returns for the IPOs is positive.
H_2 : The abnormal returns after listing are small and insignificant.
H_3 : The value of the firm is positively related to the fractional holding of the issuer (α), holding the σ^2 variance constant.
H_4 : The degree of underpricing (D) is an increasing function of the variance, given the issuer's fractional holdings.

H_5 : The firm value is positively related to the degree of underpricing (D), given the issuer's fractional holdings (α).

FINDINGS

Short and Long-run performance of IPOs

i) First day performance of IPOs

TABLE 2
Percentage abnormal returns of Malaysian IPOs on the first day of trading: 1980-1996

Mean	135
Std. Deviation	111
Coefficient of variation	0.82
Minimum	4.7
Maximum	563

Table 2 summarises the average first day market-adjusted abnormal returns of new issues. The first day return is 135 percent, with a minimum of 4.7 percent and maximum 563 percent and a volatility of 111 percent. The high degree of underpricing is consistent with previous documented evidence. This finding supports H_1, that the first-day underpricing is significantly larger than normal. However, it is possible that the shares of IPOs are issued at their intrinsic values and these prices are bid up by demand pressure in an optimistic market. This is ascertained by analysing the longer term performance.

ii) Post Listing Performance of IPOs
a) Short-run performance

TABLE 3
Short-run underpricing of Malaysian IPOs relative to the offer prices

First Day	First Week	First Month	3-Months	6-Months
135%	122%	128%	129%	133%
(t=8.67)*	(t=8.91)*	(t=9.52)*	(t=8.36)*	(t=9.33)*

*significant underpricing at or better than 0.05 probability levels

The short-run performance refers to the price performance of IPOs from the close of the first trading day to six months after listing. Table 3 summarises the average abnormal returns up to six months of trading. At the end of the first day, an average of 135 percent of abnormal returns were observed. At the end of first week of trading, the public offers recorded are 122 percent abnormal returns. There is a slight decline compared to the first day of trading, possibly due to profit taking activities of investors who cash in their new issues. After the first week, there is a slight upward trend in the abnormal returns at the end of first month (128%), third month (129%) and sixth month (133%). Generally, the IPOs showed a significant abnormal returns at the end of the first trading day which declines slightly at the end of first week and recovers at the end of the sixth month. These findings support the first hypothesis. This implies that most IPOs are inefficiently priced at their intrinsic value and the optimistic expectations of investors cannot completely explain the large abnormal returns observed at the end of the first trading day.

b) Long-run Performance

Long-run performance refers to the price performance of IPOs from the seventh to the thirty-sixth month of trading. Table 4 summarises the average abnormal returns in the long-run. The average abnormal returns at the end of the seventh month to the first year is 133 percent, at the end of the second year is 94 percent and at the end of the third year is 77 percent. The average abnormal returns in the long-run are almost half of those in the short-run, consistent with the demand pressure hypothesis. The findings imply that the long-term performance of new issues is positive and significant, inconsistent with the findings of Finn and Higham (1983).

TABLE 4
Long-run underpricing of Malaysian IPOs relative to offer prices

7th month to 1 year	2-year	3-year
133%	94%	77%
(t=8.18)*	(t=6.00)	(t=4.7)*

*significant underpricing at or better than 0.05 probability levels.

Table 5
Summary Statistics

Variables	Mean	Std Dev.	Min	Max
Underpricing	132%	133%	-2%	569%
Insider70% Shareholdings	11%	0%	89%	
Firm size	RM77.6m	RM66.3m	RM5m	RM1200m
Issue size*	RM17.96	RM14.56m	RM2.4	RM203.9m
Sample size = 100				

*Issue size refers to the size of IPO defined as the total number of shares offered to the public multiplied by the offer price

The Signalling Process of IPOs

Table 5 provides summary statistics of the sampled firms with regard to the variables of the signalling process. The average underpricing is 135 percent and average amount of retained equity is 70 percent, which ranges from zero to eighty nine percent.

To examine the testable implications of the GH model, correlation and multiple regression analysis were used and the findings are presented in tables 6 and 7 respectively. Table 6 shows that there is statistically significant positive correlation between firm risk, σ^2, and degree of underpricing, D. There is also a significant positive correlation between firm risk, σ^2, and change in firm value, Δ FV. There is a positive but not significant correlation between level of insider shareholding (α) and change in firm value (Δ FV). These relationships are further supported by results of the regression analysis.

TABLE 6
Correlation coefficient Matrix

	α	D	σ^2	FS	ΔFV
α	1.00				
D	0.30	1.00			
	(4.15)**				
σ^2	0.24	0.93	1.00		
	(2.56)	(268.89)*			
FS	0.20	0.15	0.08	1.00	
	(1.75)	(0.968)	(0.271)		
ΔFV	0.23	0.83	0.70	-0.04	1.00
	(2.45)	(93.00)*	(0.067)		

Note: F-statistics in parentheses
*significant at 1% level
**significant at 5% level

Table 7 shows a set of three regression results. In regression 1, the change in firm value is negatively related to the level of insider

TABLE 7
Test of Grinblatt - Hwang model on Malaysian IPOs

Dependent variable	Independent Variables						
	Intercept	α	D	σ^2	FS	Adj R	F
Regression 1							
ΔFV	0.0502	-0.142	0.641	-	-	0.68	68.6
	(0.154)	(-0.780)	(0.000)				
Regression 2							
D	0.327	0.716	-	0.41	-	0.87	21.5
	(0.264)	(0.086)	(0.000)				
Regression 3							
ΔFV	0.156	-	1.117	-0.076	1.450D09	0.76	66.9
	(0.237)	(0.000)	(0.000)	(0.002)			

Note: p-value in parentheses

shareholdings, when firm size is controlled. However, the relationship is not statistically significant (coefficient = -0.142, p-value = -0.780). These findings are inconsistent with the prediction of the GH model which suggests that insider shareholdings signal firm value.

Regression 2 shows when firm size is controlled, firm risk is a good explanatory variable for the degree of underpricing (coefficient = 0.141, p-value = 0.000). There is no statistical relationship between the degree of underpricing and level of insider shareholdings (coefficient = 0.716, p-value = 0.086) at 5 percent level, which is consistent with the prediction of the GH model.

In the third regression, when the level of insider shareholdings is controlled (which is also predicted to be related to firm value), the change in firm value is an increasing function of degree of underpricing (coefficient = 1.117, p-value = 0.000). Although the results of the correlation and regression analysis support two of the three testable implications of the GH model, the change in firm values are estimated from the change in values between two discrete points in time. Therefore, an analysis of abnormal returns of the sampled firm over the sampled period using even-study methodology was carried out to substantiate the above analysis.

To examine the abnormal returns of the sampled firms beyond the listing date, the sample was partitioned into groups based on the level of insider shareholdings and the degree of underpricing. The number of grouping was determined based on the distribution of the variables.

For the sample based on insider shareholdings, 35 IPOs were in the average category, 30 in the high and 35 in the low category respectively. The findings presented in Table 8 show that none of the abnormal returns in the three categories of insider shareholding are statistically significant, consistent with the results of the regression analysis and inconsistent with the prediction of the GH model.

For the grouping based on degree of underpricing, 25 IPOs in total were categorised in the very high and high categories respectively, 25 in the average categories and 50 in the low category. The findings summarised in Table 9 show that only the average abnormal returns for the law category are statistically significant over the three years period. These findings are anomalous to the prediction of the GH model but are consistent with the findings on the Singapore market (Koh, Loke, Phoon and Lim 1989).

CONCLUSION

The short and long-run performance and the signalling process of a sample of 100 Malaysian IPOs were examined. The findings suggest that the average abnormal return on the first trading day is 135 percent, after which the returns decline slightly in the first week and gradually increase thereafter. The long-run returns decline gradually to about 43 percent of the first day returns but is positive and statistically significant. Those investors who received the new issue from the issuing firm earn and average abnormal returns of 133 percent after one year and the returns decline to 77 percent after 3 years. This

TABLE 8
Average daily market-adjusted return for IPOs
in the post-listing-categorised by α, the insider shareholdings

Category	Average daily market adjusted returns		
	Year 1	Year 2	Year 3
High			
($80 < \alpha < 89$)	-0.279%	-0.21%	-0.302%
	(-0.585)	(-0.042)	(-0.0312)
Average			
($70 < \alpha < 79$)	0.263%	0.83%	0.195%
	(1.054)	(0.372)	(0.276)
Low			
($0 < \alpha < 69$)	0.034%	0.146%	0.123%
	(0.121)	(0.196)	(0.178)

Note: t-statistics in the parentheses

TABLE 9
Average daily market-adjusted return for IPOs
in the post-listing period. categorised by D, the degree of underpicing

Category	Average daily market adjusted returns		
	Year 1	Year 2	Year 3
1. Very high underpricing (D > 100%)	-0.593% (-0.708)	-0.716% (-1.020)	-1.033% (-1.061)
2. High underpricing (51% < D < 100%)	-0.321 (-0.883)	-0.467 (-0.835)	-0.500 (-0.770)
3. Average underpricing (31% < D < 51%)	-0.224 (0.845)	-0.191 (-0.549)	-0.428 (-1.40)
4. Low underpricing (0 < D < 30%)	0.558 (3.189)*	0.451 (1.854)**	0.549 (2.119)**

Note: t-statistics in parentheses
* significant at 1% level
** significant at 5% level

suggests that, on average, the IPOs are either substantially underpriced or there are other factors not accounted for that sustain the underpricing on the long-term basis. The first reasoning is plausible because even if the IPOs are substantially underpriced, the market would eventually price the issue fairly through the arbitrage process in a very short span of time. It is highly likely that the sustained underpricing of Malaysian IPOs is due to the economic policy of the government which requires at least 30 percent of each tranche of new issues to be allocated to designated group of investors or institutions owned by them, in view to correct the imbalance in the investment capital ownership among the different ethnic groups of the population. The offer price is usually intentionally fixed at a level that will ensure a benefit to those allocated the shares because the listed price is usually highly fuelled by the demand pressure. A moratorium is usually imposed on these groups not to sell the shares immediately for short-term gains, which could explain the long-term positive returns on these shares.

For the signalling process of IPOs only two of the three testable implications of the Grinblatt-Hwang Model are supported. The regression and correlation analysis showed that there is a significant positive relationship between firm risk and level of underpricing and change in firm value and underpricing. However, the results of the abnormal returns analysis are inconsistent with the prediction of the model. In general, the Grinblatt-Hwang Signalling Process Model does not fully hold for the sample of Malaysian IPOs. This could be due to the difference in the market structure and sophistication of investors, who do not perceive the implication of certain factors in a similar manner as those in developed market where the model was developed. This suggests that the model requires some refinements involving the attributes of an emerging stock market and less sophisticated investors.

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Are Accounting Undergraduates Apprehensive About Oral Communication?

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Keywords: communication apprehension, gender, participation, seating position

ABSTRAK

Komunikasi telah dikenal pasti sebagai salah satu kemahiran yang diperlukan untuk menjadi akauntan profesional yang berjaya (IFAC, 1994; AAA, 1990). Terdapat kajian yang menunjukkan bahawa kebolehan untuk berkomunikasi dengan berkesan terjejas akibat perasaan bimbang untuk berkomunikasi (McCroskey, 1977a; Freimuth, 1976). Penyelidikan ini bertujuan untuk mengkaji sejauh mana terdapat kebimbangan berkomunikasi secara lisan di kalangan pelajar perakaunan di Universiti Putra Malaysia. Dalam kajian ini, perbandingan tahap kebimbangan berkomunikasi dibuat di segi jantina, pilihan tempat duduk dalam kelas dan penyertaan dalam aktiviti kokurikular.

Tahap kebimbangan berkomunikasi secara lisan diukur dengan menggunakan Laporan Peribadi Kebimbangan Berkomunikasi, satu instrumen yang dihasilkan oleh McCroskey (1984). Ujian-t menunjukkan tiada perbezaan ketara paras kebimbangan berkomunikasi di antara pelajar lelaki dan perempuan. Dari segi pemilihan tempat duduk, kajian ini mendapati bahawa responden yang mengutamakan tempat di depan dan di tengah kelas menunjukkan tahap kebimbangan berkomunikasi yang lebih rendah dalam konteks kumpulan sahaja berbanding dengan mereka yang memilih tempat duduk di tepi dan belakang kelas. Secara keseluruhan, tiada perbezaan ketara paras kebimbangan berkomunikasi antara pelajar mengikut pilihan tempat duduk. Kajian juga menunjukkan bahawa tahap kebimbangan berkomunikasi didapati berbeza di antara pelajar yang melibatkan diri dalam aktiviti ko-kurikular di peringkat universiti dengan mereka yang tidak menyertai akitiviti tersebut.

ABSTRACT

Communication has been identified as one of the skills required to become successful professional accountants (IFAC 1994; AAA 1990). Studies have shown that the ability to communicate effectively has been hampered by the level of oral communication apprehension (OCA) (McCroskey, 1977a; Freimuth, 1976). This study investigates the incidence of OCA amongst accounting students at Universiti Putra Malaysia. It compares OCA level in terms of gender, seating position and participation in co-curricular activities.

OCA level is operationalized using Personal Report of Communication Apprehension developed by McCroskey (1984). Adopting the t-test to determine differences in OCA level between groups, it is found that males do not differ significantly from females. In terms of seating position, it is observed that respondents who prefer the front and middle seats are significantly less apprehensive about communicating in group context only than those who choose the seats on the side and back of the classroom. Overall, there is no difference between OCA level of students according to seating position. The results also reveal that significant difference exists between undergraduates who participate in co-curricular activities at university level and those who do not.

INTRODUCTION

Communication has been identified as one of the skills required to become successful professional accountants both by professional bodies (International Federation of Accountants, IFAC 1996; American Accounting Association, AAA 1990) as well as accounting academic researchers (Estees 1979 Ingram and Frazier 1980). Given that communication skills enable the professional accountant to receive and transmit information, form reasoned judgements, and make decisions effectively (IFAC 1996) it is not surprising that communication skills are reported to be an important determinant for interview selection (Hultz 1988). The importance of oral and written communication skills placed by employers in hiring and promotion decisions is also reported in other business education research such as by Maes *et al.* (1997) and Rebele (1985). However, a survey of human resource directors of accounting firms to determine skills, abilities and qualities most desired of prospective accountants reveals that oral and written communication skills are cited as areas of needed improvement (LaFrancois 1990). Accounting professionals generally also perceive that newly hired employees lack the skill to articulate conceptual ideas (Andrews and Koester 1979). Andrews and Sigband (1984) and Kullberg *et al.* (1989) confirm the deficiency in communication skills among accounting students. Although May and May (1989) report that accounting faculties are attempting to improve students' communication skills in recognition of the importance of communication skills, there is yet to see agreement on the strategies to overcome such deficiencies. For instance, both IFAC (1996) and AAA (1990), though highlighting the need to improve undergraduates' communication skills, do not provide suggestion as to how to achieve such feats.

Prior studies show that ability to communicate effectively can be hampered by poor skills or by communication apprehension (CA) or both (Daly 1978; McCroskey 1984). Stanga and Ladd (1990) stress the need to carefully differentiate between communication skills and communication apprehension before advising students who need to improve their oral communication. CA, they assert, is cognitive in nature and persons with high levels of CA do not feel good about their oral communication and therefore avoid it whenever possible. In contrast, communication skills are behavioural in nature. Elias (1999) believes that it may be CA that is hindering efforts to improve students' communication skills.

CA refers to an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons (McCroskey, 1977a). McCroskey develops an instrument, the Personal Report of Communication Apprehension (PRCA) consisting of 24 items/statements to measure the presence of oral communication apprehension (OCA) a component of CA. The higher the score, the higher the apprehension level, vice versa. It is this instrument that has been used in studies on OCA involving accounting and business students (such as by Stanga and Ladd (1990); Simons *et al.* (1995) and Elias (1999)). According to McCroskey (1977b), persons with high OCA are likely to avoid communication or experience significant high anxiety while communicating. This is brought about by their negative feelings about communicating outweighing their perceived benefits of communicating. Using McCroskey's PRCA, Stanga and Ladd (1990) establish a United States (US) average norm of 65.6 for accounting students. Elias (1999) more recently and using McCroskey's PRCA, found his subjects to have an average score of 66.37, higher than the US norm.

Literature shows that research on OCA issues in other disciplines is abundant. Despite so, empirical investigation in accounting education reporting this phenomenon remains limited although the accounting profession has recognized that communication skills are essential to perform the job of an accountant effectively. Published local studies on this issue are non-existent.

It is against this backdrop that this study is taken up. This study is hoped to contribute towards the dearth of literature on this issue in accounting education, more so, within the local setting. As its main aim, this study examines the extent of OCA incidence among accounting students in Universiti Putra Malaysia (UPM). OCA score functions as an indicator of an individual's apprehensiveness of his or her ability to communicate orally. Given that OCA is reported as able to promote an individual's unwillingness to take part in oral communication

due to their negative perception of their ability, a relatively low score for example, would imply that whatever deficiency in UPM accounting students' communication skills is not due largely to their negative perception of their oral communication ability. This should become useful information in developing strategies to further improve their oral communication skills. Remedial efforts could then be more focussed on behavioural rather than the cognitive aspects of oral communication.

OCA has been shown to be associated with a number of variables such as occupational preference (Daly and McCroskey 1975); seating position in classroom (Daly and Suite 1982); academic achievement (McCroskey and Andersen 1976) and some personality attributes like self-esteem, self-disclosure and others (McCroskey *et al.* 1976). Although essentially, comparison of OCA scores for as many attributes as possible that appear to contribute towards OCA will be useful, being exploratory, this study provides analysis of only selected few namely gender, classroom seating position and participation in co-curricular or extracurricular activities. While the association of gender and seating positions to OCA has been investigated in other studies, participation in co-curricular activities has not. Rationale for inclusion is provided in the proceeding section to be followed by a description of the method and the final section on results and discussions.

Prior Research

Many studies on oral communication have been conducted since the last five decades. Most of them focus on the effects of OCA on a person's behaviour and OCA correlates such as academic performance and seating position. The results of these studies have consistently indicated that some people are more apprehensive orally than others. This apprehension has a negative impact on their communication behaviour as well as other aspects of their lives.

Freimuth (1976) conducted a study on listeners to examine the extent to which communication apprehension of sender influences his/her communication effectiveness as perceived by the receiver. Individuals who reported high apprehension are observed to experience more frequent gaps of silence in their speech and received low ratings on language facility, vocal characteristics and general effectiveness.

Hamilton (1972) found that people with high level of OCA talk less in small group setting than people with low level of OCA in order to avoid communication. When individuals with high OCA participated in a discussion, their comments were likely to be irrelevant to the ongoing discussion (Wells 1970; Weiner 1973).

McCroskey and Sheahan (1976) observed that students with low level of OCA preferred to choose the seats in front and centre of the classroom with the arrangement of straight-row seating while students with high OCA avoided these seats and instead chose seats on the periphery of the room, on the sides and at the back. McCroskey and McVetta (1977) extended this research and found that both course attractiveness and students' OCA level did influence seating preferences.

Although significant relationship between OCA and academic performance have not been detected in the Stanga and Ladd (1990) study, such relationship is depicted in McCroskey's (1977b). Where the instructional system permits student-initiated interaction with the teacher, significant difference was noted in the academic achievement between the high and low apprehensives (McCroskey and Andersen 1976). On the contrary, the difference in academic performance was not observed in a communication-restricted system. As such, they conclude that students with high OCA would prefer large lecture classes to small classes which require extensive participation on the part of the students while the preference pattern for students with lower CA would be reversed.

With regard to the occupational choice, Daly and McCroskey (1975) found that highly apprehensive individuals indicated a clear preference for occupations with low communication requirements while lowly apprehensive individuals indicated opposite preferences. It is interesting to note from their study that in fact, accounting related occupation has been identified as one of the occupations perceived to require low communication. On this score, Stanga and Ladd (1990) theorise that because accounting is perceived to be a low communication demanding profession, students who choose to major in accounting tend to be highly apprehensive. The findings of their exploratory study suggest that beginning accounting majors have above average OCA and are found to be significantly more apprehensive

about speaking in meetings than in other communication settings. When tested for gender, the study does not find any significant difference in OCA level between males and females. Stanga and Ladd's (1990) finding on gender issue appears similar to Daly and Stafford's (1984) findings where no significant difference was observed. However, unlike Stanga and Ladd's (1990) and Daly and Stafford's (1984) results, McCroskey (1984) found that females had higher OCA than males.

Recognising the need to determine whether students are deficient in communication skills or whether they are communication apprehensives, Simons *et al.* (1995) carried out a study to determine the profile of CA in undergraduate business students focusing specially on accounting majors. Their research differs from the earlier study of Stanga and Ladd (1990) in that they also studied another form of CA, that is, written apprehension beside OCA. Using one-way ANOVA to test for gender effects, the results unlike Stanga and Ladd's (1990) indicate a significant difference between male and female. Like McCroskey (1984) who found that females had higher OCA than males, females majoring in accounting or management were also found to be more apprehensive about oral communication than males within the two majors by Simons *et al.* Females also report higher apprehension in meetings and in public speaking situations than male in those majors.

A more recent study by Beatty *et al.* (1998) reports a shift in emphasis from research focussing on correlates and consequences towards those explaining the factors that caused CA. Briefly, they view that CA represents individual's expression of inborn biological functioning independent of social learning processes. Drawing from the work of psychobiologist and CA researchers, they suggest that CA is an inherited trait genetically related. Individual differences in CA are mostly traceable to differences in biological functioning and do not depend primarily on learning processes. Hence a theory of CA based on the principles of psychobiology is proposed.

As mentioned in preceding section, apart from investigating the level of OCA among accounting students in UPM, this exploratory study also compares students' OCA scores by gender, seating position and participation in co-curricular activities. From earlier discussion of the relevant literature, studies on gender issues have exhibited conflicting results. Given such inconclusiveness, it is interesting to find out how gender is associated to OCA among accounting students in UPM although it is hypothesised here that the level of OCA is not significantly different between male and female students. Thus gender is included as one of the attributes on how OCA scores are compared in this study where

H1: Male students' OCA is not significantly different from those of female students.

Although no conflicting reports are observed with respect to OCA in terms of choice of seats in classroom as depicted by both McCroskey and Sheahan's (1976) and McCroskey and McVetta's (1977) studies, seating position is another attribute investigated in this study. An observable phenomenon within the accounting classroom setting as experienced by the researchers throughout their teaching at UPM is the tendency of students to occupy the middle, back and side seats (also referred to as periphery) with the front rows usually left unoccupied. Inclusion of this variable in this study can provide an indication of whether students' choice of classroom seating position is in fact contributed to their OCA level. McCroskey and Sheahan (1976) and McCroskey and McVetta (1977) theorise that it is fear of being called to participate in classroom discussion that leads students with high OCA to choose seats on the periphery of the room, on the sides and at back instead of front row seats. Although it is hypothesised here that the choice of seating position is not affected by students' OCA, confirmation of the presence of this phenomenon would be useful for such knowledge would in turn, allow educators to re-strategize the way they select students for classroom participation. Hence the second hypothesis for this study is

H2: There is no significant difference between OCA score of students who choose the front and middle classroom seats and those who choose the back and side seats.

While gender and seat position have been studied by many researchers in relation to OCA (Daly and McCroskey 1975; McCroskey and Sheahan, 1976; Stanga and Ladd, 1990), participation in co-curricular activities has not.

Peculiar to Malaysian universities, students are strongly encouraged to participate in co-curricular or extracurricular activities such as being member of uniformed units, academic and non-academic societies. Studies that focused on determining the effect of student participation in extracurricular activities on personal achievement and socialisation almost all show that participation in extracurricular activities has positive bearing on personal and social development. For example, Haensly *et al.* (1986) in studying the role of extracurricular activities in relation to personal and social development, and to academic achievement, conclude that extracurricular activities provide an important context for social, emotional and academic development. Likewise, Carter and Neason (1984) found a positive relationship between student participation in extracurricular activities and personal development. Of more direct relation to this study is the work by Collins (1977) which indicates that students who participated in various extracurricular activities, more specifically student organisations, often had higher self-esteem than those who did not. McCroskey *et al.* (1976) earlier found that students with high self-esteem tend to be low apprehensives. Hence, it is interesting to observe the OCA level of UPM accounting students who participate in co-curricular activities and compare it with OCA level of those who do not. With the findings of McCroskey *et al.* (1976) indicating the tendency of students with high self-esteem having low OCA while the findings of Collins (1977) indicating that students who participate in co-curricular activities tend to have high self-esteem, following their argument, it appears that students who participate in co-curricular activities can be expected to have low OCA. On the level of OCA in relation to participation in co-curricular activities, the third hypothesis tested in this study is

H3: There is no significant difference between the OCA score between students who participate in co-curricular activities and those who do not.

METHODOLOGY

The PRCA developed by McCroskey (1984) was administered to 90 randomly selected first year accounting students at UPM. As earlier mentioned, PRCA was selected for this study because it has been employed extensively in previous research concerning OCA. More importantly too, it has consistently produced relatively high internal reliability estimates of above 0.90 and test re-test reliability of above 0.80 (McCroskey, 1984). In this study, the Cronbach alpha value is 0.8930, thus indicating that the instrument is a reliable measure of OCA in the Malaysian context.

In essence, the McCroskey PRCA that measures OCA elicits an individual's personal feelings for communication. The instrument consists of six items in four different communication settings: public speaking, meetings, group discussions and talking in dyads. Respondents were required to indicate the degree of agreement with each of the statement on a 5-point Likert scale, with 1 representing strongly agree and 5 indicating strongly-disagree status. To ensure full understanding of the statements, a pretested, translated version of the instrument was used whenever required by respondents. A qualified translator carried out the translation. To ensure mutual translatability of the two language versions, the Malay language translated version was retranslated into English language and compared with the original instrument.

In addition to the PRCA, students' background data such as gender, participation in co-curricular activities and preferred classroom seating position were also collected. T-test was employed to these data to determine whether significant difference at OCA level exists between the groups (male versus female; preference for front and middle row seats versus back and peripheral seats; and participation versus non-participation).

RESULTS AND DISCUSSION

An overall PRCA score and a score on each of the four subscales (public speaking, meeting, group, dyad) were computed for each respondent. The mean overall PRCA score was 63.09 with a standard deviation of 12.39. Table 1 shows the frequency distribution of the PCRA overall scores for the respondents in the study. In the absence of a Malaysian nation-wide mean score, the overall mean score of the study was compared to the US national average score (Stanga and Ladd, 1990) and the score computed by Elias (1999). The average PRCA score of this study is lower than the US average score of 65.6 and the score established by Elias (1999) of 66.37. McCroskey (1984) used scores that equal

or exceed one standard deviation above the mean as a cut off point to identify students who have high level of OCA. This means that a student, whose overall PRCA score equals or exceeds 75.5, has high OCA. Similarly, one whose score is 50.7 or lower is considered as low apprehensive. Using this cut off point, it is observed that 12.2% and 23% of the sample are high and low apprehensives respectively.

TABLE 1
Frequency distribution of PRCA overall scores of accounting students

PRCA Score	Frequency	Percentage
25-34	2	2.2
35-44	3	3.3
45-54	16	17.8
55-64	23	25.6
65-74	35	38.9
75-84	8	8.9
85-94	3	3.3
90	100	

High	94.00	Low	28.00
Mean	63.09	Standard Deviation	12.39

The mean PRCA score is highest for public speaking and lowest for communicating in group (refer table 2). The results imply that accounting students are more apprehensive speaking in public and meeting than in group or dyad setting. Similar results are also evidenced in the Stanga and Ladd's (1990) study. This confirms the results of the survey by Bruskin Associates (1973) that the most frequently reported fear is speaking in public.

Table 2
Summary of PRCA results
(n=90)

PRCA Scale	Mean	Standard Deviation	Max.	Min.
Overall	63.09	12.39	94	24
Group	12.61	3.65	26	6
Meeting	17.20	5.03	28	6
Dyad	13.24	3.59	24	6
Public Speaking	20.02	4.86	28	6

A comparison of OCA level between male and female students does not indicate any significant difference (refer Table 3) although female subscale scores are higher than males in all communication settings. Hence, H1 in this study is accepted. The finding differs from previous studies (McCroskey, 1984 and Simons *et al.* 1995) where females were found to have a significantly higher OCA level than males. Perhaps, the higher number of females making up the population of accounting students in UPM may have reduced some degree of apprehensiveness among the female students. Chances of being called upon in the classroom should be equal if not more for the female students unlike Bogart's study (1981) which reports that male students were called on more often than female students and female students' contribution was viewed as less important. To conclude with certainty as to why there is no significant difference between male and female students' score of PRCA will require further study.

TABLE 3
Oral communication apprehension by gender

PRCA Scale	Male	Female	T-value	2-Tail Sig.
Overall	61.39	63.66	-0.79	.437
Group	12.26	12.73	-0.57	.570
Meeting	16.43	17.46	-0.83	.411
Dyad	13.04	13.3 1	-0.31	.756
Public Speaking	19.65	20.15	-0.42	.678

In terms of seating position, the results reveal that the overall scores of respondents who prefer the front and middle seats are not significantly different from those who choose the seats at the back and periphery of the classroom (Table 4). H2 in this study is thus accepted. A further examination of the subscale scores however indicates that the former is less significantly apprehensive only in group-communication setting, compared to the latter. Both groups appear more apprehensive in public speaking and meeting than in other communication context.

A cross-tabulation of seating position by OCA level (Table 5) indicates that all of the low apprehensives prefer the front and middle seats while majority of the high apprehensives chooses the seats in the middle and peripherals of the classroom. A plausible explanation is that, this phenomenon could be the result of the strategy adopted by the students with high apprehension

to avoid communication encounters with instructors.

TABLE 4
Oral communication apprehension by seating position

PRCA Scale	Seating Position		T-value	2-Tail sig.
	Front & Centre	Side & Back		
Overall	62.34	68.36	-1.75	0.102
Group	12.23	15.36	-2.25	0.045*
Meeting	16.96	18.91	-1.14	0.274
Dyad	13.33	12.64	1.00	0.325
Public Speaking	19.82	21.45	-1.28	0.220

*Significance at 0.05 level

TABLE 5
Seating position by oral communication apprehension level

Seating Position	CA Level		
	Low	Medium	High
Front	9(69.2%)	27(40.3%)	1(10%)
Centre	4(30.8%)	32(47.7%)	6(60%)
Side	-	4(6.0%)	3(30%)
Back	-	4(6.0%)	-
Total	13(100%)	67(100%)	10(100%)

When t-test is carried out to compare overall OCA level between students who participated in co-curricular activities at university level and those who did not, a significant difference is observed at 0.05 level. Students who participated in co-curricular activities at university level are found to be less apprehensive about oral communication than those who did not. Therefore H3 is rejected.

Participation in co-curricular activities in university is voluntary, hence high apprehensives might not participate in order to avoid communication encounters. As a consequence, those who participate in co-curricular activities tend to be made up of those with low OCA level, vice-versa. Another possibility is that as highlighted in earlier section. McCroskey *et al.* (1976) observe that students with high self-esteem tend to have low OCA while the findings of Collins (1977) indicate among others, that students who participate in co-curricular activities tend to have high self-esteem. Following on from their arguments, it appears that UPM accounting students who participate in co-curricular activities may have low OCA because they are high-esteemed individuals in the first place.

A comparison of subscale scores between participation and non-participation groups found that the participation group was significantly less apprehensive than the non participants in group and dyad setting. Non-participation group characterised by high CA would be expected to be more apprehensive about communicating in a circumstance where participation cannot be avoided. In dyad situation for instance, one does not have any choice but to respond when talked to. Indeed, a significant difference in CA level between those who participated and did not participate in co-curricular activities at university level does exist for group and dyad context (refer Table 6). But, in public speaking and meeting situations, even the group that participated in co-curricular activities did not differ significantly in their CA scores from the non-participants.

TABLE 6
Oral communication apprehension by participation in co-curricular

PRCA Score	Activities		T-value	2-Tail sig.
	Participation	Non-participation		
Overall	61.36	68.09	-2.19	0.036*
Group	11.81	14.96	-3.25	0.003
Meeting	17.03	13.70	-0.59	0.557
Dyad	12.64	15.00	-2.45	0.020*
Public Speaking	19.88	20.43	-0.53	0.600

*Significance at 0.05 level

CONCLUSION

The present study investigates the incidence of OCA among first year accounting students in UPM and subsequently compares OCA level according to gender, preferred seating position in the classroom and participation in co-curricular activities. The findings indicate that the average OCA level of accounting students in UPM is lower than the USA national norm (Stanga and Ladd 1990) and the average score as found by Elias (1999). Generally, accounting

students are found to be more apprehensive about communicating in public and meetings than in dyad and group discussions.

No significant difference is found between male and female students for all communication settings. In terms of seating position preference, overall, the OCA of students does not differ significantly. Nevertheless, accounting students who prefer front and middle row seating are generally less apprehensive than those who prefer the back and periphery seats in group context. For participation in co-curricular activities, accounting students who participate appear to have lower OCA level than those who do not.

The above results confirm that fear or anxiety about one's ability to communicate well in various communication context, does exist among accounting students in UPM. This implies that any lack of communication on the part of these students need not necessarily be caused by their inability or lack of skill to communicate orally, effectively. Rather, lack of oral communication may be the result of their fear or negative perception of not being able to communicate well. Although male and female students do not appear to have significantly different level of OCA, students who prefer the back and periphery seats in classroom seem to do so out of fear about their oral communication skills when communicating in group. This piece of information should be helpful to instructors in strategizing the way to encourage class participation. As theorised by McCroskey and Sheahan (1976) and McCroskey and McVetta (1977), students tend to perceive the back and periphery seats as "safe" seats from being called out by instructors. Perhaps, one way to minimise students' fear is to increase class group activities that require oral communication. Such activities should be aimed more for students who are most apprehensive, in this case, from the back and periphery seats. Eventually, with practice, the level of fear or negative perception about their oral communication skill among students with high OCA can be reduced. On the issue of participation in co-curricular activities, students with high OCA should be encouraged to participate in co-curricular activities. As shown by Haensly *et al.* (1986) and Carter and Neason (1984), participation in co-curricular activities can be beneficial towards improving one's self-esteem and personal development. Hence one way of addressing the problem of fear to communicate is to encourage participation in activities that promote communication. Again, it is hoped that through frequent practice of oral communication as required through participation in co-curricular activities, the fear to communicate (as denoted by the high PRCA score of those who do not participate) can at least be minimised, if not totally avoided, so that gradually, the high apprehensives will become low apprehensives. With such findings, policies to encourage higher participation in co-curricular activities should be designed due to the benefits that can be derived from co-curricular participation.

Thus, this study as rationalised in the first section bears implications on the way educators can help improve students communication skills. Given that students in UPM are found to be apprehensive about their oral communication ability, strategies can be designed to address the cognitive aspect of communication in addition to the behavioural elements. With such findings as above, some specific measures with respect to minimising students OCA can be developed.

It is also hopeful that this study can provide the impetus for future research in the area. Obviously further work involving a larger sample size and other variables such as prior working experience, choice of academic programmes and covering all universities in Malaysia is needed to obtain a better picture of CA among accounting students. A comparative study of OCA between accounting and non-accounting students can also be carried out to investigate whether accounting students' choice of programme is due to their perception of low communication requirement of the discipline. Comparison of first and final year accounting students should also be insightful in understanding the state of the phenomenon. To encompass a more comprehensive coverage of students' communication skills, perhaps a study on written communication apprehension among students in addition to OCA can be conducted.

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Keberkesanan Latihan: Pengalaman Sebuah Agensi Pengembangan di Malaysia

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Kata kunci: keberkesanan latihan, pembelajaran, pengalaman pembelajaran, maklum balas, pemindahan pembelajaran, rakan kongsi latihan, penyelidikan kualitatif.

ABSTRAK

Objektif umum kajian ini ialah untuk mengenal pasti perkara yang membantu meningkatkan keberkesanan latihan. Secara terperinci kajian kualitatif ini bertujuan untuk mendapat pandangan peserta terhadap keberkesanan Kursus Kejurulatihan APM* dan mengenal pasti perkara yang membantu meningkatkan keberkesanan latihan dari perspektif peserta kursus tersebut. Penyelidik telah menemu duga secara terperinci sepuluh informan.

Kajian ini menunjukkan, dari perspektif peserta, bahawa: (1) Kursus Kejurulatihan APM mencapai tahap keberkesanan yang membanggakan; (2) lapan perkara membantu meningkatkan keberkesanan latihan, iaitu kejelasan objektif, motivasi, penyediaan dan penyusunan pengalaman pembelajaran yang bersesuaian, bimbingan dan maklum balas, pemindahan pembelajaran, susulan dan maklum balas, kesesuaian tempat latihan, serta sokongan daripada pihak pengurusan organisasi; (3) pihak pengurusan APM memainkan peranan penting sebelum, semasa dan selepas kursus dalam menjayakan kursus yang dianjurkan; dan (4) ketiga-tiga rakan kongsi utama iaitu peserta, fasilitator, dan pihak pengurusan APM, membantu meningkatkan keberkesanan latihan.

ABSTRACT

The purpose of this study was to identify elements that help to increase the effectiveness of training. The specific objectives of this qualitative study were to identify the participants' view on the effectiveness of the APM Training of Trainers Course and to identify the elements that helped to increase the training effectiveness. The researcher conducted in-depth interviews with ten informants.

The study concluded that from the participants' perspectives: (1) the APM Training of Trainers Course was effective; (2) eight elements contributed to the effectiveness of the training namely; clear objectives, motivation, appropriate learning experiences, coaching and feedback, transfer of learning, follow-up and feedback, appropriate training place, and support from the organization management; (3) the APM management played an important role prior, during and after the training to ensure the success of the Training of Trainers Course; and (4) all three main partners; the participants, the facilitators, and the management of APM, helped to increase the effectiveness of the training.

PENDAHULUAN

Senario ekonomi dunia mengalami perubahan dengan begitu pantas berpunca daripada perubahan dalam bidang teknologi. Cocheu (1989) mengatakan hanya organisasi yang mengeluarkan produk berkualiti tinggi dan perkhidmatan cemerlang sahaja dapat bersaing di pasaran terbuka. Faktor tersebut telah mendorong kebanyakan organisasi berlumba-lumba meningkatkan kualiti barangan dan perkhidmatan masing-masing bagi memboleh-kan mereka bersaing dengan pengeluar lain.

* APM merupakan nama samaran bagi sebuah agensi pengembangan di Malaysia dan ia akan digunakan sepanjang artikel ini.

Peningkatan kualiti barangan dan perkhidmatan bukan sahaja bergantung kepada kecanggihan peralatan yang digunakan tetapi juga kepada sikap dan kualiti pekerja yang mengendalikan peralatan dan perkhidmatan tersebut. Oleh itu mereka perlulah diberi perhatian sebaik yang mungkin dengan melengkapkan ilmu pengetahuan, kemahiran dan sikap yang bersesuaian. Dalam usaha meningkatkan prestasi pekerja, program latihan seringkali menjadi pilihan.

Roger dan Jim (1992) serta Goldstein (1993) mengatakan latihan merupakan suatu usaha yang sistematik bagi meningkatkan pengetahuan, kemahiran dan memperbaiki sikap pekerja. Menurut mereka tujuan latihan ialah untuk meningkatkan keupayaan pekerja terhadap tugas yang diamanahkan. Lynton dan Pareek (1994) berpendapat latihan dan pembelajaran saling berkaitan dalam menyumbang kepada pembangunan individu. Program latihan merupakan salah satu cara seseorang boleh mendapat pengalaman pembelajaran. Mengikut Mazanah dan Carter (2000), seseorang dikatakan mendapat sesuatu pengalaman pembelajaran apabila dia merasa, berfikir dan bertindak dengan cara yang berbeza hasil daripada penglibatan di dalam sesuatu aktiviti dan merenung kembali pengalaman tersebut. Proses pembelajaran dikatakan telah berlaku apabila pelajar memperolehi suatu perlakuan baru daripada pengalaman yang dilaluinya (Tyler, 1949).

Kerajaan Malaysia telah memperuntuk sebanyak RM13.2 bilion dalam belanjawan 1997 bagi membangunkan bidang pendidikan dan latihan (Berita Harian, 1996). Peruntukan ini merupakan yang tertinggi berbanding dengan peruntukan yang diberikan kepada sektor lain. Oleh kerana perbelanjaan yang besar diperlukan bagi melaksanakan sesuatu program latihan, mereka yang bertanggungjawab perlulah memikirkan tentang manfaat pelaburan tersebut kepada peserta dan organisasi. Jika program latihan mencapai tahap keberkesanan yang membanggakan, yakni pekerja mengamalkan perkara yang dipelajari di tempat kerja, maka ini menjelaskan bahawa pulangan dari pelaburan ataupun 'return on investment' (ROI) ke atas program latihan telah mencapai tahap yang setimpal. Georgensen (1982) mengatakan adalah sukar bagi peserta untuk mengamal dan mengekalkan perkara yang dipelajari di tempat kerja. Kajian yang dijalankan olehnya menunjukkan hanya 10% sahaja bahan yang dipelajari dapat diamalkan di tempat kerja. Salah sebuah organisasi latihan iaitu Translearn Associates (1996) pula mengatakan bahawa hanya 50% sahaja perkara yang dipelajari daripada program latihan telah dilaksanakan secara berkesan di tempat kerja. Organisasi tersebut turut mengatakan bahawa kebanyakan pelaburan kepada program latihan menyebabkan kerugian berbilion ringgit yang terpaksa ditanggung oleh organisasi terbabit.

Apakah perkara yang boleh membantu meningkatkan keberkesanan latihan? Penyelidik mendapati masih belum ada kajian tempatan yang cuba menjawab persoalan tersebut. Oleh itu satu kajian kes telah dijalankan di sebuah agensi pengembangan di Malaysia (APM). Secara yang lebih terperinci kajian ini bertujuan untuk mengenal pasti (1) pandangan peserta Kursus Kejurulatihan APM mengenai tahap keberkesanan kursus tersebut dan (2) perkara yang membantu meningkatkan keberkesanan latihan.

METODOLOGI

Pendekatan kualitatif telah digunakan dalam kajian ini. Kirk dan Miller (1986) mengatakan kaedah kualitatif pada asasnya bertujuan untuk mengkaji informan dari perspektif mereka. Oleh yang demikian kaedah ini memberi peluang yang luas kepada informan untuk menjelaskan pengalaman yang mereka lalui sendiri tanpa dipengaruhi oleh nilai, idea, andaian atau perkara-perkara lain yang dikehendaki oleh penyelidik (Bogdan dan Biklen, 1982).

Informan kajian terdiri daripada pegawai APM yang telah mengikuti Kursus Kejurulatihan yang dianjurkan oleh agensi tersebut. Pemilihan peserta daripada kursus tersebut adalah disebabkan oleh kewujudan elemen berikut; ia dijalankan secara berterusan dan melibatkan peserta yang sama, peserta diberi peluang mengamalkan perkara yang dipelajari, fasilitator membuat lawatan di tempat kerja selepas kursus dijalankan, serta sokongan daripada pihak pengurusan organisasi (APM) di peringkat sebelum, semasa dan selepas kursus dijalankan. Mengikut beberapa kajian dan penulisan yang

lepas, elemen ini boleh membantu meningkatkan keberkesanan latihan.

Informan dipilih dari kalangan peserta yang telah mengikuti sekurang-kurangnya dua siri Kursus Kejurulatihan APM. Mereka mestilah terlibat dalam merancang dan melaksanakan projek pengembangan iaitu salah satu tugasan yang dilakukan selepas mengikuti kursus tersebut. Teknik "purposive sampling" yakni memilih informan yang mampu menerangkan mengenai perkara yang dikaji digunakan untuk memilih informan bagi kajian ini. Melalui teknik ini seramai 10 daripada 21 peserta telah dipilih sebagai informan kajian. Penyelidik membuat keputusan untuk tidak menambah bilangan informan berdasarkan kepada maklumat yang diperolehi telah mencapai ke tahap tepu (Bogdan dan Biklen, 1982) yakni maklumat yang hampir sama telah diperolehi daripada semua informan. Kesemua mereka telah ditemu duga secara terperinci dan setiap temu duga dirakamkan. Setiap sesi temu duga memakan masa antara 1 jam hingga 1 1/2 jam.

Hasil temu duga yang dirakam, telah ditranskrip secara verbatim dan ditaip ke dalam komputer yang menggunakan program 'microsoft word for windows'. Hasil temu duga tersebut telah dicetak yang mana jumlah data yang diperolehi adalah sebanyak 294 muka surat (langkau dua baris).

Peringkat seterusnya ialah mengkategori data yang diperoleh. Tech (1990) mengatakan tujuan mengkategori data ialah untuk memudahkan penyelidik menghuraikan fenomena yang dikaji. Setelah semua data ditranskrip, penyelidik telah membaca transkrip tersebut berulang kali untuk mendapatkan tema daripada data yang diperolehi. Pembentukan kategori adalah berdasarkan kepada tema yang muncul daripada data. Proses ini juga dipandu oleh kerangka kerja konsep dan objektif kajian. Kategori yang diperolehi adalah seperti berikut:

1. Keberkesanan Kursus Kejurulatihan APM
2. Kejelasan dan kesesuaian objektif
3. Motivasi
4. Penyediaan dan penyusunan pengalaman pembelajaran yang bersesuaian
   - 4.1 Penyediaan
   - 4.2 Penyusunan: kesinambungan, urutan dan integrasi
5. Bimbingan dan maklum balas
6. Pemindahan pembelajaran
7. Susulan dan maklum balas
8. Kesesuaian tempat latihan
9. Sokongan organisasi: sebelum, semasa dan selepas latihan

Data yang dicetak dibaca berulang kali dan ditandakan dengan kod kategori yang bersesuaian. Kod ini juga telah ditandakan di atas salinan transkrip (data) yang tersimpan di dalam komputer. Setelah dikodkan, satu program komputer iaitu TDC II (Textual Data Categorizing) digunakan bagi menyusun semua data yang diperolehi mengikut kategori. Penulisan hasil kajian seterusnya dilakukan berasaskan data yang telah dikategorikan.

TEMUAN DAN PERBINCANGAN

Jadual 1 menunjukkan ringkasan keseluruhan hasil kajian.

JADUAL 1
Pandangan peserta terhadap keberkesanan kursus kejurulatihan APM

Perkara	Informan										Peratus %
	1	2	3	4	5	6	7	8	9	10	
1. Keberkesanan kursus			/	/	/	/	/	/	/	/	80
2. Kejelasan dan kesesuaian objektif	/	/	/	/	/	/	/	/		/	90
3. Motivasi	/	/	/	/	/	/	/	/	/		90
4. Penyediaan dan penyusunan pengalaman pembelajaran yang bersesuaian	/	/	/	/	/	/	/	/	/	/	100
5. Bimbingan dan maklum balas	/	/	/	/	/	/	/	/	/	/	100
6. Pemindahan pembelajaran	/	/	/	/	/	/	/	/	/	/	100
7. Susulan dan maklum balas	/	/	/	/	/	/	/	/	/	/	100
8. Kesesuaian tempat latihan	/	/	/		/		/	/	/		70
9. Sokongan organisasi	/	/	/	/	/	/	/	/	/	/	100

Pandangan Peserta Terhadap Keberkesanan Kursus Kejurulatihan APM

Majoriti informan mendapati kursus tersebut adalah berkesan. Jelas Bakar:

> "... jadi selepas daripada kursus, kita rasa kita ni lebih baik. Jadi masalah-masalah yang timbul...kita dapat selesaikanlah dengan lebih baik daripada yang sebelum tu.... Maknanya ada perubahan, perubahan yang lebih baiklah. Kita tak nafi kursus tu berkesan."

Menurut informan, menerusi kursus ini mereka diberi peluang untuk melaksanakan perkara yang telah dipelajari di tempat kerja. Selain daripada itu, mereka juga mendapat sokongan yang baik dari pihak pengurusan organisasi seperti dalam bentuk peruntukan dan peralatan yang diperlukan untuk melaksanakan projek yang telah dirancang semasa kursus. Pihak organisasi dan fasilitator kursus turut pergi ke tempat kerja mereka bagi membuat susulan dan memberi maklum balas terhadap hasil kerja yang dijalankan. Peluang yang diberikan kepada peserta untuk mengamalkan perkara yang dipelajari di tempat kerja merupakan kekuatan kursus ini. Tambahan pula, peserta sentiasa mendapat bimbingan dari pihak pengurusan dan fasilitator selepas kursus dijalankan.

Perkara yang Membantu Meningkatkan Keberkesanan Latihan

Dari perspektif peserta kursus, lapan perkara membantu meningkatkan keberkesanan latihan. Perkara tersebut ialah kejelasan dan kesesuaian objektif, motivasi, penyediaan dan penyusunan pengalaman pembelajaran yang bersesuaian, bimbingan dan maklum balas, pemindahan pembelajaran, susulan dan maklum balas, kesesuaian tempat latihan, dan sokongan organisasi.

a. Kejelasan dan Kesesuaian Objektif

Majoriti informan mengatakan kejelasan objektif memainkan peranan penting dalam membantu meningkatkan keberkesanan latihan. Kebanyakan penulis seperti Tyler (1949), Boyle (1981), Knox (1986) serta Roger dan Jim (1992) mendefinisikan objektif program sebagai suatu pernyataan terhadap perkara yang akan dicapai oleh seseorang pelajar dari pengalaman pembelajaran yang disediakan. Di samping itu menurut mereka, objektif juga membantu fasilitator untuk memilih strategi pembelajaran bersesuaian dan menyediakan gambaran asas dalam membuat penilaian.

Oleh kerana objektif yang digariskan bertujuan untuk mewujudkan perubahan yang bermakna dalam pola tingkah laku pelajar, maka objektif yang digariskan mestilah jelas dan bersesuaian dengan kemampuan pelajar. Menurut Jamal, jika objektif yang hendak dicapai telah dijelaskan, ini membantu mereka (pelajar) membuat persediaan untuk menghadapi kursus yang akan diikuti: "...kalau kita dibagi tahu (tentang objektif kursus), ni maknanya kita bersedia untuk kursus tu...".

b. Motivasi

Majoriti informan berpendapat hanya pelajar yang bermotivasi tinggi sahaja akan sentiasa bersungguh-sungguh di dalam setiap aktiviti pembelajaran yang disediakan dan seterusnya melaksanakannya di tempat kerja. Menurut Suffian, fasilitator dan pihak pengurusan sentiasa memberi rangsangan kepada peserta mengenai kepentingan kursus kepada pembangunan diri dan organisasi. Dengan ini peserta akan memberi penumpuan kepada kursus yang diikuti dan seterusnya mengamalkan perkara yang dipelajari di tempat kerja. Hasil kajian menunjukkan terdapat beberapa kaedah yang telah dilakukan oleh fasilitator untuk merangsang peserta supaya terlibat di dalam aktiviti yang disediakan. Menurut Roslan, ini termasuklah berusaha menghilangkan rasa perbezaan, sama ada antara peserta dengan peserta, mahupun antara peserta dengan fasilitator. Mengikut Torrence (1993), fasilitator dapat merangsang peserta dengan cara berinteraksi bersama mereka, sama ada menerusi komunikasi lisan ataupun bukan lisan. Ini termasuklah mengucapkan kata-kata yang merangsangkan, memberi senyuman serta menggunakan bahasa badan yang positif.

Peserta latihan juga boleh dirangsang melalui pendekatan agama. Kata Jamal:

> "...sekurang-kurangnya dia (kuliah subuh) boleh menyedarkan kita tentang tanggunjawab kita dengan tugas kita dan tanggungjawab kita dengan Tuhan le...baru rasa nak bersungguh-sungguh....Yang ni kena tanam. Betul demo tak naik gaji, tapi hak setiap sen yang demo dapat tu mari mana? ...kesedaran, tanggungjawab hak diberi tu kena disempurnakan, amanah orang bagi tu kena dilaksanakan. Kalau tak laksana apa nama ni, kita dengan Tuhan macam mana?"

Owen (1987) dan Covey (1990) mengatakan bahawa kewujudan manusia ditunjangkan oleh tiga aspek penting iaitu mental, fizikal dan spiritual. Menurut mereka ketiga-tiga unsur ini perlu sentiasa digilap supaya melahirkan pekerja yang berkualiti. Ungku Aziz (1992) pula berpendapat salah satu kekuatan yang ada pada rakyat Malaysia ialah mereka mempunyai kepercayaan agama dan penghayatan spiritual yang kuat. Walaupun begitu, menurut beliau sumber kekuatan yang ada ini masih tidak diambil sebagai satu peluang oleh kebanyakan organisasi dalam mengendalikan program latihan.

Peserta kursus akan lebih bermotivasi jika kerja mereka dinilai oleh pihak organisasi dan mereka diberi ganjaran. Jelas Azahari: " Kalau saya, saya tumpu yang ini, because yang ni ada dalam SKT (Sasaran Kerja Tahunan) saya. Saya kena bagi tumpuan....So bos saya akan tengok...."

c. Penyediaan dan Penyusunan Pengalaman Pembelajaran yang Bersesuaian

Keseluruhan informan mengatakan pengalaman pembelajaran mestilah disedia dan disusun dengan cara yang bersesuaian bagi membantu meningkatkan keberkesanan latihan.

i Penyediaan Pengalaman Pembelajaran yang Bersesuaian

Pengalaman pembelajaran telah disediakan bersesuaian dengan keperluan peserta Kursus Kejurulatihan APM. Sebagai contoh, melalui syarahan pendek, fasilitator kursus telah menerangkan kepada peserta cara menyediakan kertas cadangan program pengembangan. Peserta kemudian diberi tugasan untuk menyediakan sendiri kertas cadangan. Peserta juga berpeluang untuk mempersembahkan perkara yang dilakukan di hadapan fasilitator dan peserta yang lain. Begitu juga dengan perkara lain seperti penyediaan dan penggunaan alat bantuan mengajar. Jelas Amin:

> Tajuk-tajuk memang suka, dia (fasilitator) bagi bagaimana nak buat kertas (kertas cadangan), alat-alat bantu mengajar ataupun video ataupun poster...kita (peserta) bahagi empat kumpulan. Kita guna kelengkapan di IPT (Nama samaran sebuah Institut Pengajian Tinggi yang mengendali kursus tersebut). Makna kita buat sendiri...dan benda tu kita dapat laksanakan apabila balik (di tempat kerja).

Tyler (1949) telah mencadangkan beberapa prinsip pemilihan pengalaman pembelajaran yang bersesuaian bagi mencapai objektif pendidikan yang digariskan. Ini termasuklah (1) pelajar berpeluang mengamalkan tingkah laku yang diharapkan dari sesuatu objektif yang dibentuk (2) pengalaman pembelajaran mestilah mempunyai daya penarik, (3) pengalaman pembelajaran tidak begitu asing dengan pelajar, (4) menyediakan pengalaman pembelajaran yang pelbagai bagi mencapai objektif pendidikan yang sama dan (5) penyediaan pengalaman pembelajaran yang sama dapat memberi beberapa natijah yang berlainan.

ii. Penyusunan Pengalaman Pembelajaran yang Bersesuaian

Hasil kajian menunjukkan tiga unsur penting yang perlu diambil kira dalam penyusunan pengalaman pembelajaran. Unsur tersebut adalah kesinambungan, urutan dan integrasi. Unsur kesinambungan bermaksud penyusunan pengalaman pembelajaran yang mengambil kira pengalaman lepas oleh seseorang pelajar. Hasil kajian menunjukkan bahawa kewujudan unsur sebegini memberi peluang kepada peserta untuk membuat perkaitan antara perkara yang sedang dipelajari dengan pengalaman yang telah mereka lalui. Amin yang membuat perbandingan antara kursus yang diikuti dengan tugas harian mengatakan "...dia berkait rapat le. Berkait rapat". Pandangan tersebut bersesuaian dengan pandangan yang diberikan oleh Rogers (1969), Boyle (1981), Werther dan Davis (1985) Slameto (1991), Tyler (1949) serta Mazanah dan Carter (2000). Mereka mengatakan pembelajaran lazimnya lebih berkesan jika pelajar boleh melihat perkaitan antara perkara yang dipelajari dengan tugas yang dilakukan.

Selain daripada itu, unsur kesinambungan juga memberi peluang kepada peserta untuk mengulangi perkara yang telah dipelajari supaya dapat dihayati dengan lebih berkesan. Samad berkata "Jadi perkara tu terpaksa diulang-ulang la, untuk mendapat satu kemahiran yang sempurna.... Jadi kalaulah sentiasa ada majlis perbincangan...boleh ingat balik dari segi apa yang kita belajar...."

Unsur kedua di dalam penyusunan pengalaman pembelajaran ialah urutan. Tyler (1949) mengatakan unsur urutan memberi peluang kepada pelajar untuk memperoleh pengalaman baru yang lebih meluas dan mendalam berasaskan kepada pengalaman lalu. Hasil kajian menunjukkan unsur urutan turut

diambil kira di dalam penyusunan pengalaman pembelajaran di dalam Kursus Kejurulatihan APM. Menurut informan, kursus tersebut telah diadakan sebanyak tiga siri. Pada siri yang pertama, peserta hanya didedahkan kepada konsep asas yang sering digunakan di dalam perencanaan program. Antaranya termasuklah mempelajari konsep pembelajaran, pengalaman pembelajaran, tugasan pembelajaran dan analisis keperluan. Pada siri yang kedua, mereka mengatakan ianya lebih terperinci jika dibandingkan dengan siri yang pertama. Peserta bukan sahaja didedahkan kepada teori dan konsep seperti pada siri pertama, tetapi turut diberi tugasan pembelajaran yang perlu disediakan semasa kursus. Kata Samad:

> Aaa kursus peringkat pertama tu banyak meliputi dari segi pengenalan, apakah yang dikatakan kejurulatihan. Lepas tu pengenalan kepada konsep-konsep kejurulatihan. Aa apakah konsep pengalaman pembelajaran....Lepas tu peringkat kedua kita banyak didedahkan kepada ke arah praktikal...jadi banyak kita melaksanakan kertas-kertas kerja, lepas tu buat persembahan... kemudian dari segi pendedahan tu lebih detail la dibandingkan dengan kursus yang pertama....

Unsur ketiga di dalam penyusunan pengalaman pembelajaran ialah integrasi. Mengikut Mazanah dan Carter (2000), integrasi merujuk kepada penggabungan segala idea, pemahaman dan kemahiran yang telah dipelajari di dalam pengendalian sesuatu situasi. Oleh sebab itu ianya perlu wujud dalam penyusunan pengalaman pembelajaran bagi membantu pelajar menghadapi cabaran dengan lebih berkesan. Hasil kajian menunjukkan wujud unsur integrasi dalam pengendalian Kursus Kejurulatihan APM. Keseluruhan peserta merupakan agen pengembangan yang bertugas menyampaikan maklumat baru kepada masyarakat setempat. Oleh sebab itu mereka bukan sahaja memerlukan kemahiran untuk menyediakan program pengembangan yang baik, tetapi juga memerlukan kemahiran lain termasuklah kemahiran berinteraksi dan berkomunikasi dengan golongan sasaran masing-masing. Mengikut informan, Kursus Kejurulatihan APM telah menggabungkan dua bidang yang berkaitan. Kata Zamri, "Bukan setakat pengembangan, tapi dilibatkan (juga) komunikasi...." Selain daripada itu, mereka juga mencadangkan beberapa bidang seperti bidang motivasi, psikologi dan kepemimpinan diberi penekanan. Syor Zamri "...kita berharap (di masa hadapan) supaya kandungan kursus tu diubah suai...dalam motivasi, ...psikologi, kepemimpinan yang menyeluruh...."

d. Bimbingan dan Maklum Balas

Dalam proses pembelajaran, sokongan melalui aktiviti bimbingan dan maklum balas seringkali berlaku serentak. Fasilitator membantu seseorang belajar melalui bimbingan. Pada masa yang sama, fasilitator juga akan memberi maklum balas kepada pelajar sama ada apa yang pelajar fahami dan lakukan menepati sebagaimana yang diajar. Keseluruhan informan mengatakan bimbingan dan maklum balas dapat menyumbang ke arah meningkatkan keberkesanan latihan. Melalui kerjasama antara peserta dan fasilitator, aktiviti ini dapat disempurnakan dengan lebih bermakna. Kata Jamal:

> "Dia (fasilitator) dok perati tengok kita bincang. Lepas tu kalau nampak kita tak faham biasa kita panggil dia dalam (datang ke) kumpulan kita...tanya sebab nak dapat penjelasan, takut lari (daripada yang diajar). Kadang-kadang tu tak perlu kita panggil pun dia tengok, tengok kita kalau kelam kabut ni dia".

Kata Amin pula: "Maknanya dia (fasilitator) menyelia apa kerja yang kita (peserta) buat. Kita tak faham, kita bagi tahu dia. Dia tengok kertas kerja kita, ok dia kata sini cara dia (cara yang betul). Kita ubah, kita buat yang dia (syorkan)". Rogers (1969), Boyle (1981), Tyler dalam Mazanah (1987), Broad dan Newstrom (1992) dan Reynolds (1993) juga telah menegaskan bahawa seseorang pengajar mestilah bertindak sebagai fasilitator pembelajaran, yakni membantu memudahkan peserta untuk menerima dengan lebih cepat dan berkesan mengenai sesuatu perkara yang dipelajari melalui pemberian bimbingan dan maklum balas.

e. Pemindahan Pembelajaran

Kesemua informan mengakui bahawa pemindahan pembelajaran memainkan peranan penting bagi membantu mencapai matlamat pembelajaran. Tyler dalam Mazanah (1987) mengatakan pemindahan pembelajaran boleh berlaku dalam dua situasi, iaitu di dalam dan di luar bilik kuliah (tempat di mana proses pengajaran pembelajaran berlaku). Pemindahan pembelajaran di dalam bilik kuliah berlaku

apabila fasilitator menggunakan contoh sebenar semasa mengajar dan memberi peluang kepada peserta mengamalkan perkara yang telah pada pelajari di situasi tersebut.

> ...contoh-contoh yang dia buat. Contoh ni, ni katalah pensil, dia sesuaikan dengan si anu si anu tu. Jadi kita mudah jelas, bermakna kita dengan suasana kita buat kerja tu kita boleh buat perbandingan (Samad).

> ...dia (fasilitator) jelaskan dari konsep pembelajaran dia sini-sini-sini. Lepas pada tu suruh kita (peserta) buat...kita dapat melaksanakan sendiri. Jadi apabila dapat melaksanakan sendiri baru kira betul, mudah terikat pada fikiran kita... berbanding dengan hanya sekadar bagi ceramah saja... (Samad).

Pemindahan pembelajaran di luar bilik kuliah pula berlaku apabila seseorang pelajar mengamalkan perkara yang dipelajari di tempat kerja. Kata Hattan, "...kita masing-masing paper yang kita buat di IPT, balik kita kena buat, apply di tempat kita". Kursus Kejurulatihan APM mempunyai keunikannya tersendiri. Peserta telah diberi peluang seluas-luasnya untuk mengamalkan perkara yang dipelajari di tempat kerja. Bagi memastikan proses pemindahan ini berlaku, pihak fasilitator dan pengurusan organisasi APM telah mengarahkan supaya kesemua peserta kursus melaksanakan projek yang telah dirancangkan semasa mengikuti kursus. Werther dan Davis (1985), Tyler dalam Mazanah (1987), Raduwan (1988), Broad & Newstrom (1992), Slaven dan Totterdell (1993) serta Cheeseman (1994) juga telah mengutarakan mengenai kepentingan memberi peluang kepada peserta untuk mengamalkan perkara yang dipelajari di tempat kerja masing-masing.

f. Susulan dan Maklum Balas

Kesemua informan mengakui kepentingan peranan susulan dan maklum balas di dalam pengendalian latihan. Menerusi aktiviti ini, fasilitator berpeluang untuk melawat pelajar semasa di tempat kerja bagi melihat perkembangan setelah mengikuti kursus. Di samping itu fasilitator boleh memberi maklum balas serta memperbaiki tindakan yang dilakukan oleh pelajar semasa di tempat kerja. Kata Suffian, "Maknanya dia (fasilitator) mainkan peranan la. Dia (fasilitator) datang buat perbincangan dapatkan feedback (maklum balas) dari kita, apa kemajuan yang telah tercapai, apa program seterusnya...". Jamal berpendapat, terdapat tiga tujuan aktiviti susulan dan maklum balas. Pertama, untuk mengetahui samada peserta dapat melaksanakan apa yang telah dipelajari di tempat kerja. Kedua, untuk mengetahui jika peserta telah mengamalkannya, adakah apa yang dilakukan itu menepati dengan apa yang telah diajar. Ketiga, membantu peserta untuk menilai sama ada apa yang dilakukan telah mencapai objektif yang digariskan ataupun sebaliknya.

> Satunya nak tahu dia (peserta) buat tak buat. Yang keduanya tahu dia buat, tapi betul tak betul kita tak tahu. Lepas tu yang ketiganya dari segi penilaian, sejauh mana berjaya tak berjaya kita tak tahu...(Jamal).

Kajian ini mendapati aktiviti susulan dan maklum balas di tempat kerja yang dilakukan oleh fasilitator meningkatkan lagi kefahaman mengenai perkara yang telah dipelajari semasa kursus. Kata Suffian, "Mengenai kefahaman kita sebenar setelah di follow up oleh Puan Emilia, kursus pertama, kedua, itu kita nampak jelas le sikit mengenai perencanaan program...." Kenyataan informan ini bersesuaian dengan apa yang telah diperkatakan oleh Boyle (1981), Tyler dalam Mazanah (1987), Baldwin dan Ford (1992) dan Jane (1993) yang mengatakan fasilitator perlu berfungsi sebagai perangsang dengan membuat susulan serta memberi maklum balas yang diperlukan kepada peserta setelah mereka pulang ke tempat kerja masing-masing.

g. Kesesuaian Tempat Latihan

Kebanyakan informan berpendapat bahawa kesesuaian tempat latihan memainkan peranan penting bagi meningkatkan keberkesanan latihan. Menurut mereka, Kursus Kejurulatihan APM yang diadakan di IPT memang sesuai disebabkan ianya dilengkapi dengan peralatan pembelajaran yang diperlukan. Ini termasuklah peralatan untuk menyediakan bahan pengajaran seperti transparensi, poster, slaid dan video. Menurut mereka bilik kuliah, tempat penginapan dan makanan yang disediakan adalah di tahap yang selesa dan memuaskan. Jelas Saiful, " Macam di IPT memang lengkap...sangat sesuai, sebabnya kita nak dapat dari segi peralatan, kalau macam tempat lain memang sukarlah...."

h. Sokongan Organisasi

Keseluruhan informan mengatakan sokongan organisasi membantu meningkatkan keberkesanan latihan. Sokongan organisasi terbahagi kepada tiga peringkat iaitu peringkat sebelum, semasa dan selepas latihan. Sokongan yang diberikan oleh organisasi di peringkat sebelum latihan termasuklah kesungguhan di dalam merancang penyediaan program pembangunan diri kepada pekerja. Kata Amin, "Itulah, dia bagi peruntukan (bagi mengikuti kursus) dan kita ucapkan terima kasih kerana hantar kita ikut kursus." Penemuan ini bersesuaian dengan pandangan Lippitt (1958), Boyle (1981) serta Broad dan Newstrom (1992) iaitu pihak organisasi bertanggungjawab merancang pembangunan pekerja serta memberi kesedaran mengenai kebaikan yang diperolehi dari program pembangunan tersebut.

Sokongan organisasi semasa kursus pula termasuklah menghantar wakil pengurusan organisasi bagi mengikuti kursus yang dijalankan. Penglibatan sebegini dapat meningkatkan semangat peserta lain untuk memberi komitmen terhadap kursus. Menurut Hattan, apabila pihak pengurusan menghantar wakil bagi kursus yang dijalankan, ianya juga dapat mempercepat lagi penyampaian sesuatu maklumat dari pihak peserta untuk tindakan pihak pengurusan. Kata beliau, "...kita cuba luahkan. Tak kira pro atau pun kontra.... Hari tu (semasa kursus) pengembangan (pihak pengurusan) pun terlibat."

Sokongan di peringkat perlaksanaan lebih kepada memastikan peserta agar dapat melaksanakan apa yang telah dipelajari di tempat kerja. Hasil kajian menunjukkan antara sokongan yang diberi oleh organisasi termasuklah membuat susulan dan memberi maklum balas yang diperlukan semasa di tempat kerja. Peserta kursus diminta untuk melaksanakan tugasan yang telah dirancang semasa kursus di tempat kerja masing-masing. Selain daripada itu pihak organisasi juga menyediakan peruntukan dan peralatan yang diperlukan bagi melaksanakan tugasan tersebut. Kata Amin: "Pihak HQ (ibu pejabat) panggil kita, ataupun dia hantar surat, dia nak tengok apa kita buat. Biasa kita bagi tahu masalah pada HQ". Saiful turut berkata: "APM bila-bila dia menyokong, tinggal laginya atas kumpulan tu la...pihak APM boleh bagi peruntukan dan sebagainya". Lippit (1958), Koontz dan Weihrich (1989) serta Mat Lazim (1995) menekankan betapa perlunya kerjasama antara pihak pengurusan organisasi dengan pekerja bagi memastikan berlakunya perubahan yang kekal.

KESIMPULAN

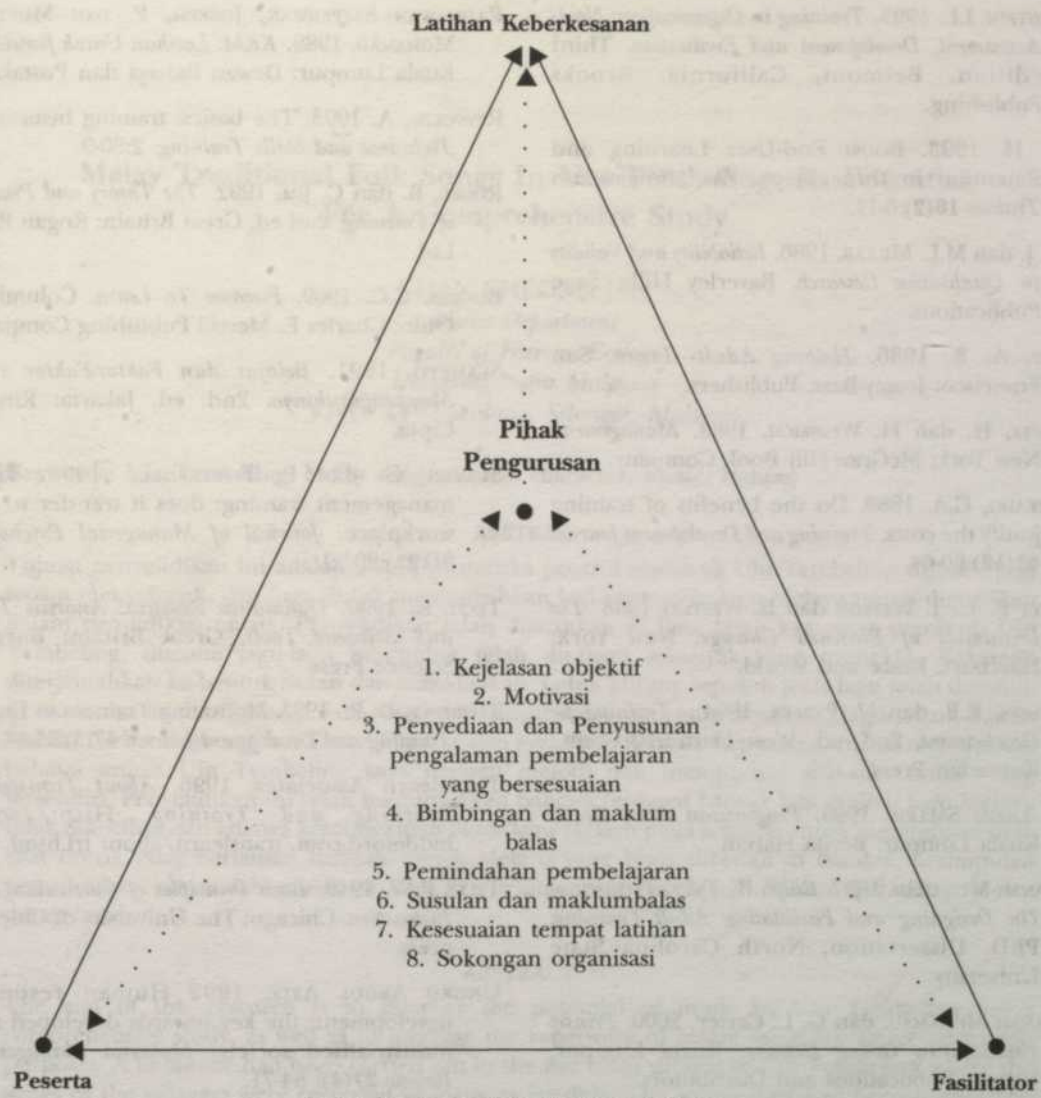
Kajian ini menunjukkan bahawa dari perspektif peserta, Kursus Kejurulatihan APM telah mencapai tahap keberkesanan yang membanggakan. Pada keseluruhannya, tiga rakan kongsi utama iaitu peserta, fasilitator dan pihak pengurusan APM memainkan peranan penting bagi membantu meningkatkan keberkesanan latihan.

Lapan perkara membantu meningkatkan keberkesanan latihan tersebut. Perkara tersebut adalah kejelasan dan kesesuaian objektif, motivasi, penyediaan dan penyusunan pengalaman pembelajaran yang bersesuaian, bimbingan dan maklum balas, pemindahan pembelajaran, susulan dan maklum balas di tempat kerja, kesesuaian tempat latihan dan sokongan organisasi. Pihak pengurusan APM memainkan peranan penting dalam menjayakan kursus yang dianjurkan. Peranan tersebut terbahagi kepada tiga peringkat iaitu sebelum, semasa dan selepas kursus dijalankan.

CADANGAN DAN IMPLIKASI

Kursus Kejurulatihan APM perlu diteruskan lagi dengan memberi penekanan kepada aspek motivasi supaya peserta lebih yakin dengan kebolehan diri sendiri serta bersungguh-sungguh untuk mengamalkan perkara yang dipelajari. Pihak pengurusan APM dan fasilitator perlu meneruskan usaha memberi bimbingan dan maklum balas kepada peserta terutama semasa mereka menjalankan tugas di tempat kerja.

Tiga rakan kongsi utama dapat membantu meningkatkan keberkesanan sesuatu latihan. Rakan kongsi tersebut ialah peserta, fasilitator dan pihak pengurusan organisasi. Peranan dan kerjasama antara rakan kongsi tersebut boleh dilihat dalam Model Keberkesanan Latihan (Rajah 1). Ketiga-tiga rakan kongsi diletakkan di setiap penjuru segi tiga. Tanda anak panah pergi dan balik di setiap penjuru tersebut menandakan ketiga-tiga rakan kongsi ini perlu bekerjasama antara satu sama lain bagi memastikan keberkesanan latihan. Perkara yang juga perlu wujud bagi meningkatkan keberkesanan sesuatu latihan terkandung di dalam segi tiga tersebut.



Rajah 1: Model keberkesanan latihan

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Malay Traditional Folk Songs In Ulu Tembeling: Its Potential For A Comprehensive Study

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Keywords: Ulu Tembeling, Malay song, musical character, music, Indung

ABSTRAK

Tujuan penyelidikan ini adalah untuk meneroka potensi muzik di Ulu Tembeling untuk dikaji secara menyeluruh, dan juga untuk menambahkan lagi repertoire lagu Melayu untuk digunakan dalam pendidikan muzik. Penyelidikan telah dijalankan di lima buah kampung utama di Ulu Tembeling, dimana lagu-lagu penduduk telah dirakam sebanyak yang mungkin. Rakaman diterjemahkan ke bentuk notasi dan dianalisakan. Lebih kurang sepuluh jenis lagu telah ditemui, di antaranya adalah Indung; Saba; lagu dodoi;lagu bercerita;lagu permainan; lagu untuk Tarian Lukah, Tarian Limbung dan Tarian Mayang; dan juga Dikir Rebana. Keputusan analisis menujukkan bahawa muzik Ulu Tembeling kaya dengan melodi dan mempunyai sifat-sifat muzik yang tersendiri. Penyelidikan ini telah menunjukkan bahawa terdapat banyak lagi melodi lagu Melayu tidak diketahui dan adanya kemungkinan besar lagu Melayu pada semulajadinya mempunyai sifat-sifat muzik yang berlainan dengan muzik Melayu yang biasa dikenali di bandar. Kesimpulan penyelidikan ini adalah muzik di Ulu Tembeling perlu didokumentasikan dan dikaji secara menyeluruh.

ABSTRACT

The aim of this research is to discover the potential of music in Ulu Tembeling for a comprehensive study, as well as to increase the repertoire of Malay songs for music education purposes. A fieldwork had been carried out in the five main villages in Ulu Tembeling where the songs of the villagers were recorded as many as possible. The sound data had been transcribed to notation and analyzed. Around ten types of songs were found in Ulu Tembeling. Among them are: Indung; Saba; Lagu Dodoi; Lagu Bercerita; Lagu Permainan; songs for Tarian Lukah,Tarian Mayang, Tarian Limbung; and Dikir Rebana. The analysis showed the variety of tunes and they have specific characteristics, such as asymmetrical time, the flexibility between down beat and up beat, etc. The result demonstrated that there were more repertoires of Malay melodies, and the original musical characteristics of Malay music may be different from those well known in the urban society. The conclusion of the research is that there is a need to document and study the traditional folk songs of Ulu Tembeling comprehensively.

INTRODUCTION

The musical value of music can be approached by its natural relation with the language applied together with it, and by viewing music as a record of human expression or response towards a particular environment and the lifestyle in the history. These two views on music should be the main consideration when we talk about the setting of materials for a music curriculum in one country, and they should also be the basis for art music composition and performance activities to build up the musical identity of one country. According to Hoffer (1992), the idea of the importance of the cultural basis of art and music was supported by the sociological view of life with the realization of the wide differences

among the types of music found around the world.

For the purpose of setting the cultural basis for music education, there is a need to examine the representative styles of music that has a close relationship with the local culture, which also includes the relationship between music and the language used. Meanwhile there is also a need to increase the repertoire of the Malay songs for music education purposes, especially the repertoire of children songs. Many studies that had been carried out on Malay music, for example the research by Matusky(1994); Mohd. Anis(1993); Ku Zam Zam (1994); Malm(1974); were focused on performing art and did hardly provide music material for Malay folk songs casually sung in the household such as children songs, lullabies, working songs and so on.

The hypothesis of this research is that some of the musical characters of the Malay songs had been transformed along the process of urbanization, which had become more similar to the present western popular music. Many of the Malay songs were sung and were notated in consistent meter notation; applying the major and minor scales in western music.

The main aim of the research is to clarify the musical styles of Malay songs before the music was influenced by urbanization process; as well as to increase the repertoire of Malay song for education purpose. The study will naturally focus on the symbolic connections between the music and the culture, and to examine the relationship between them. This paper will only present findings in the early stage, focusing on a potential region that had not been studied intensively in the context of musicology.

The Ulu Tembeling region is located in the heartland of Peninsular Malaysia, in the State of Pahang. As reported in Wan Sabri's report (1991), the estimated number of households of this area in the year 1991 is at about 879. The main economic activities are paddy growing and rubber tapping, while the part time economic activities include harvest of forest produce. Although mountain path is made available for vehicles recently, the most convenient way to reach Ulu Tembeling from the nearest town Jerantut is still by boat, lasting between five to seven hours for the entire journey. In Wan Sabri's report(1991), Ulu Tembeling region is considered a 'fringe society' or a population that is divorced from the process of development. One of the characteristics of this area is the Taman Negara, or the National Park, however the development of Taman Negara did not bring much change to the lifestyle of the local population. The five main villages in Ulu Tembeling which were selected for field survey and recording are Kampung Bantal, Kampung Mat Daling, Kampung Gusal, Kampung Kuala Sat and Kampung Pagi. The isolated location and the difficulty of transportation to the Ulu Tembeling area could be considered as an implication whereby the type of music which has not been influenced by the present urban culture in Malaysia may still exist in Ulu Tembeling. However it was discovered by the researcher later that inspite of difficulty in physical accessibility of this place, the population of Ulu Tembeling had been in the past decade being exposed to the urban music culture through radio and telivision, while the authentic folk music was still in practice in Ulu Tembeling.

OBJECTIVE

The main objective is to explore the musical culture in Ulu Tembeling, and to determine whether one should carry a comprehensive musical study on Ulu Tembeling in future. The specific objectives are as below:

- to discover the number of types of music
- to examine the characters of music
- to clarify the practice of music in the past and present

METHODOLOGY

Interviewing the villagers and recording of their singing were the main activities in the fieldwork. A fieldwork for seven days had been carried out in Ulu Tembeling. The researcher had visited all the five villages. The respondents were the villagers, mainly the senior villagers who could sing traditional folk songs. Researcher had also visited all the five primary schools, each from every village, to record the children's singing. The size of samples had not been determined in the planning stage, as this was the exploratory survey to the area. However about 30 songs were recorded during the fieldwork. Songs that had been recorded during the fieldwork was then transcribed into musical notation. A brief musical analysis was carried out upon the sound data and the transcription. This method of analysis is considered sufficient for this early stage, with

the understanding that the western traditional music notation system is not the best approach for analysis (Lomax,1980).

RESULTS

Types of Music in Ulu Tembeling.

The following types of songs which had been found existing in Ulu Tembeling are : Lagu Indung; Tarian Saba; Lagu Dodoi [lullabies]; Lagu Bercerita [story telling song]; Lagu Permainan [children game songs]; Tarian Mayang; Tarian Lukah; Tarian Limbung; and Dikir Rebana.

Indung is a set of 36 songs sang by women while working in the paddy field, especially during grass cuting. Indung was commonly practiced in Kampung Bantal, Kampung Mat Daling and Kampung Gusal. Each song was attached with a specific poem [pantun]. It is a group singing, in unison, where the form is an alternation between a solo singer and the whole group. There were no musical instruments involved in Indung singing. Within the Indung songs, there are many lullabies. On the other hand, there are also a few songs that are sung with dance movements. The singing of Indung begin with the song Anak Indung, and ends with the song Pulang Indung, in which both songs share the same melody but different in their song text.

The text of a particular song in Indung is shown as below. This song is normally sung in the order of number 18, entitled Puteri Bongsu. This text is obtained directly from the lead singer Makcik Hamiah Haji Ahmad.

[Text for answering phrase sung in group, in unison, which is usually called as jawab]

Adik puteri bongsu,
tidurkah jaga adiklah tubuh mu adik.

[Text for solo singer, which is usually called as pantun]

Tuan Puteri Mayang mengurai,
Pelangi menyala di daun pandan;
Hajat hati malas bercerai,
Selagi ada nyawa di badan.

In Indung songs, one answering phrase is repeated many times, using the same melody and text. The solo singer normally sings two stanzas of *pantun* in a song, but she could add on different *pantun*(s) if she likes to. All the different stanzas of pantun sung by the lead singer in a song share the same melody. Although there is diversity in the characters of the song texts of the Indung songs collection, many song texts appeared to be love poems. According to Makcik Hamiah, the spirit of the Puteri Gunung Bertujuh taught the songs to her ancestors through dreams. Gunung Bertujuh refers to the seven hills in Kampung Bantal. As far as Indung is concerned, the performance of Kampung Bantal's Indung group had been documented and studied by Norazit Selat (1999), mainly from social-cultural point of view. A musicological approach on Indung song is yet to be carried out.

Tarian Saba is a set of healing songs with dancing in Kampung Bantal and probably in the areas nearby. It was performed to celebrate the recovery of a patient. When a patient is recovered, the family would hold an open house dinner, and the villagers would dance the Tarian Saba in that house. The length of the dance was decided according to the seriousness of the illness that the patient had. The more serious the illness was, the longer the dance would be. The senior villagers in Kampung Bantal informed that in the past, Tarian Saba had been carried out until the cock crowed in the next morning. The *bomoh*, or the Malay shaman would lead the ceremony and dance. A *gending*, or the special accompanist of the shaman would accompany the dance with his singing while playing the rebana. Other villagers would participate, dancing in a circle surrounding a tree-like decoration made out of young coconut's leaves. Saba is in fact the name given to this tree-like decoration. As Saba is a part of the traditional curing, the text has many special terms used in shamanistic charms. No documentation had been done for Tarian Saba in Ulu Tembeling, although Mohd Yusof Abdullah decsribed the Tarian Saba performed in place other than Ulu Tembeling. (Mohd Yusof, 1983)

Lagu Dodoi and Lagu Bercerita are songs sung by parents to their children at home. Many villagers in their fifties or so admitted that their parents used to sing lullabies and tell stories to them during their childhood. A few of these villagers sang some Lagu Dodoi for the researcher. Among them was Makcik Sum Imam Massah from Kampung Mat Daling who sang the song shown in *Fig. 6.* Some senior villagers sang Lagu Bercerita for the researcher and the

duration of each of these Lagu Bercerita was at least 40 minutes. Among the story texts are Cerita Raja Terkukur, Cerita Musang Berjanggut Pandai Membaca Kitab, and Tudung Periuk. Lagu Dodoi and Lagu Bercerita are essentially the types of songs sung within households. 80 years old Makcik Sum Imam Massah from Kampung Mat Daling recalled that when she was small, each household had its own songs of Lagu Dodoi and Lagu Bercerita. One family would not know the Lagu Dodoi and Lagu Bercerita of other family. This is not surprising if we understand the variety and individuality of these songs due to the creativity and preference of stories by different family members who sang the songs at that time.

Lagu Permainan [children game songs] includes the old game songs that were shared by the senior villagers in their childhood days, and the present game songs that are taught in the primary school. Primary school children are found to be able to sing both the old game songs of their grandparents and some other new game songs including the game songs that use English song text. Tarian Limbung, Tarian Lukah and Tarian Mayang were songs with dance practiced during celebration events like wedding, as entertainment. Dikir rebana, the songs applying Islamic texts, did not particularly belong to the Ulu Tembeling people, and could be found in other places in the State of Pahang.

Musical Characters of Songs

Most of the songs in Indung are in simple structure: binary form, repetition of two phrases. The single melody was ornamented frequently. The texture is heterophony when it was sung in a group, due to slightly different ornamentation by each singer.

Most of the songs in Indung songs collection have a consistent pulse but not necessary consistent meter. For example, the opening phrase of Anak Indung (*Fig. 1*), has a consistent pulse, though it is difficult to distinguish a sense of meter here. Another example, Buai Adik Dendang Sayang(*Fig.2*), has a melody which is natural with the intonation of the song text. It gives the impression of being in a free tempo, even though it is actually consistent in pulse.

Other than those songs with dancing, the songs in Indung were in a rather slow tempo. The sense of strong beat and weak beat (down beat and up beat) in Western Classical Art Music does not seem to apply here. A song for dancing, Burung Berlatuk (*Fig. 3*) has seven basic pulses in a phrase. The beat that falls on the left foot during dancing will eventually fall on the right foot when it is repeated.

Every Indung song has its own melody. Although some of the songs have the pitch range of an octave, most songs do not have wide range of pitch. In most cases, the average pitch range is only a perfect 5th. Most of the songs

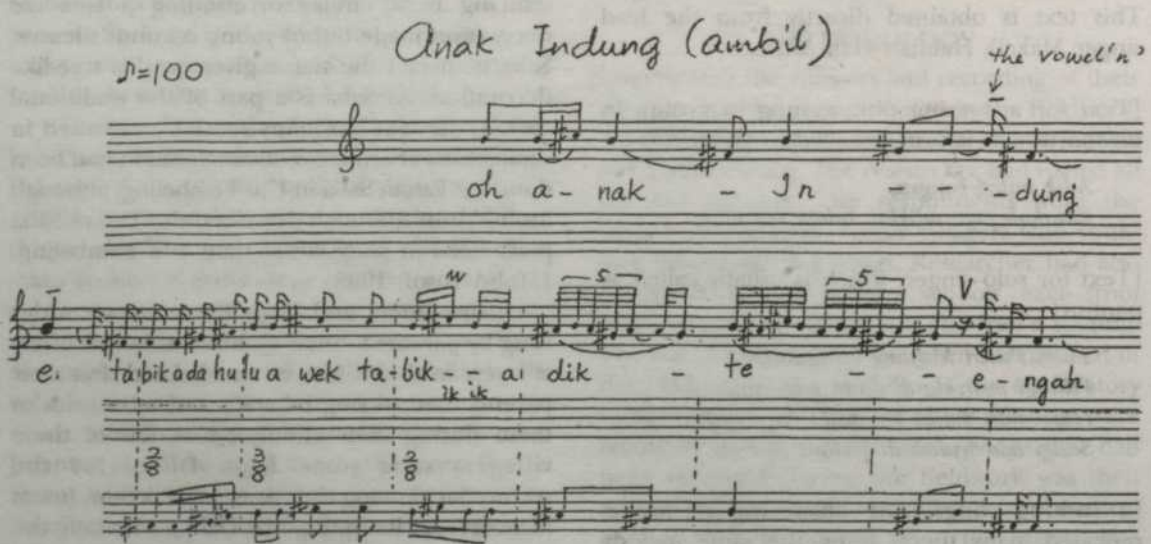

Fig. 1. Anak Indung

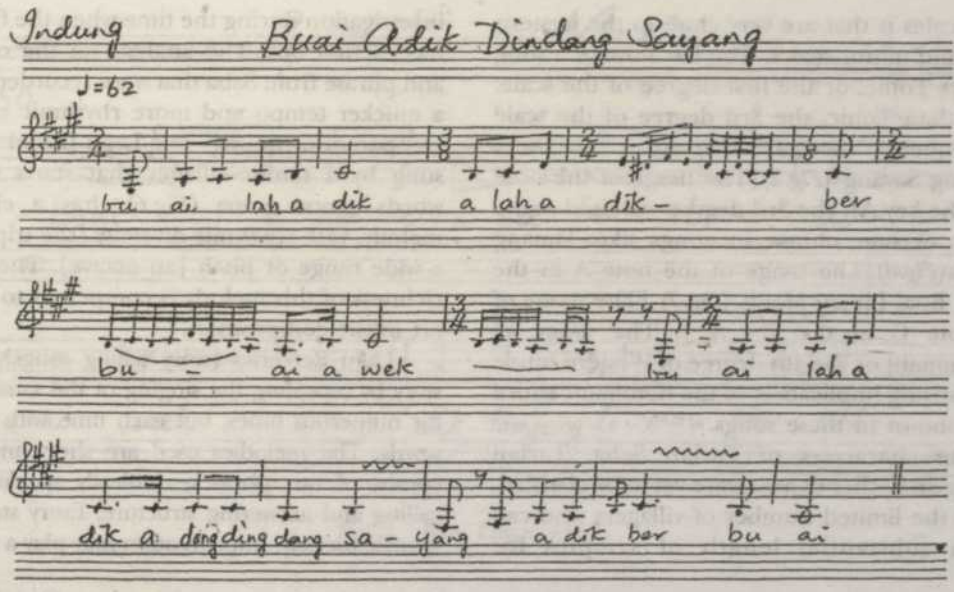

Fig. 2. Buai Adik Dindang Sayang

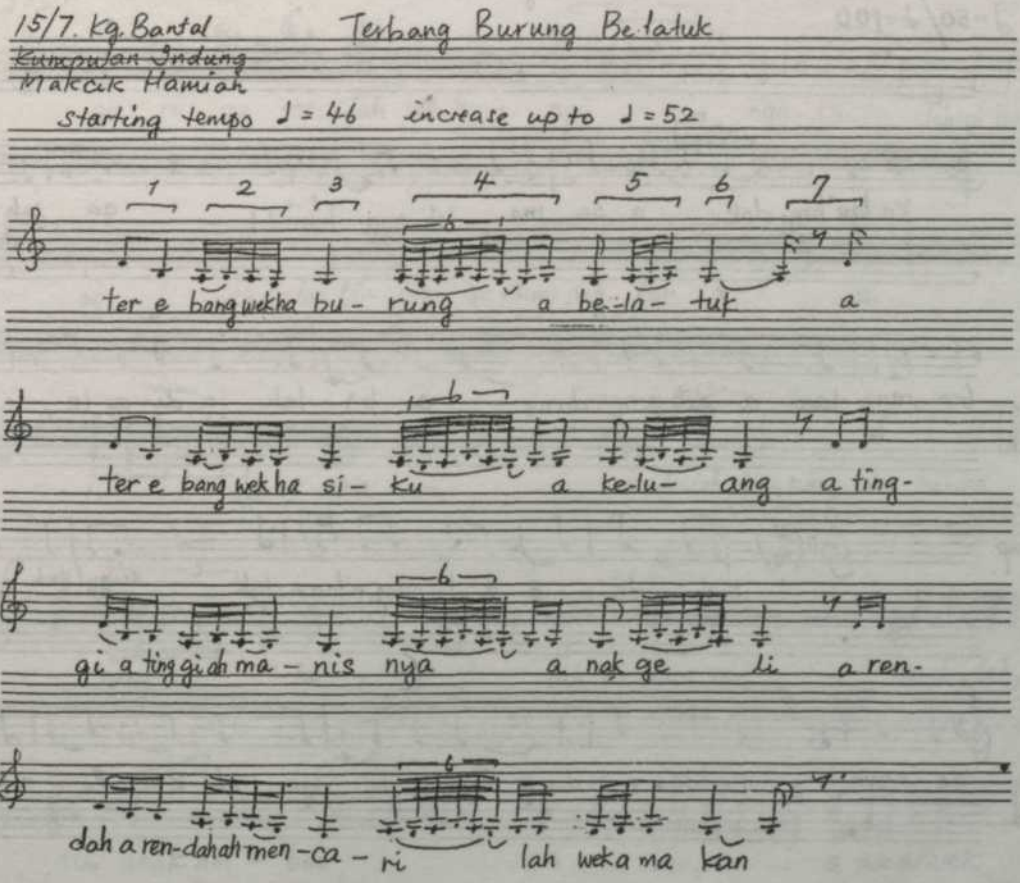

Fig. 3. Burung Belatuk

apply scales is that are very close to the western major and minor scales. The last note of a song is always Tonic, or the first degree of the scale. Other than Tonic, the 3rd degree of the scale was frequently used; as observed in Buai Adik Dendang Sayang (*Fig.2*) [The usage of the note C# in the key A].The 3rd degree was used at the ending of one phrase in songs like Timang Landak(*Fig.4*) [The usage of the note A in the key F], Buai Limau Manis (*Fig.5*) [The usage of the note C in the key A]. The usage of subdominant or the 4th degree of Western music with a strong implication of the dominant chord is not shown in these songs.

The characters of Tarian Saba, Tarian Mayang and other dances were yet to be clarified, due to the limited number of villagers who can sing a substantial length of samples for investigation during the time when the fieldwork was carried out. The analysis on the one song and phrase from Saba that were recorded showed a quicker tempo and more rhythmic character compared to Indung. The Lagu Dodoi [lullaby] sung by a senior villager that starts with the words *gerum geram* (*Fig.6*), has a charming melody, with rhythmic diversity [the triplet] and a wide range or pitch [an octave]. The musical richness of this melody is competent to those of art music composition.

Lagu Bercerita [story telling songs] tells the story by repeating the singing of the same melody for numerous times, but each time with different words. The melodies used are short and usually consist of two phrases, musically speaking, in a calling and answering structure. Every story has a specific melody. Improvisation may play a role here

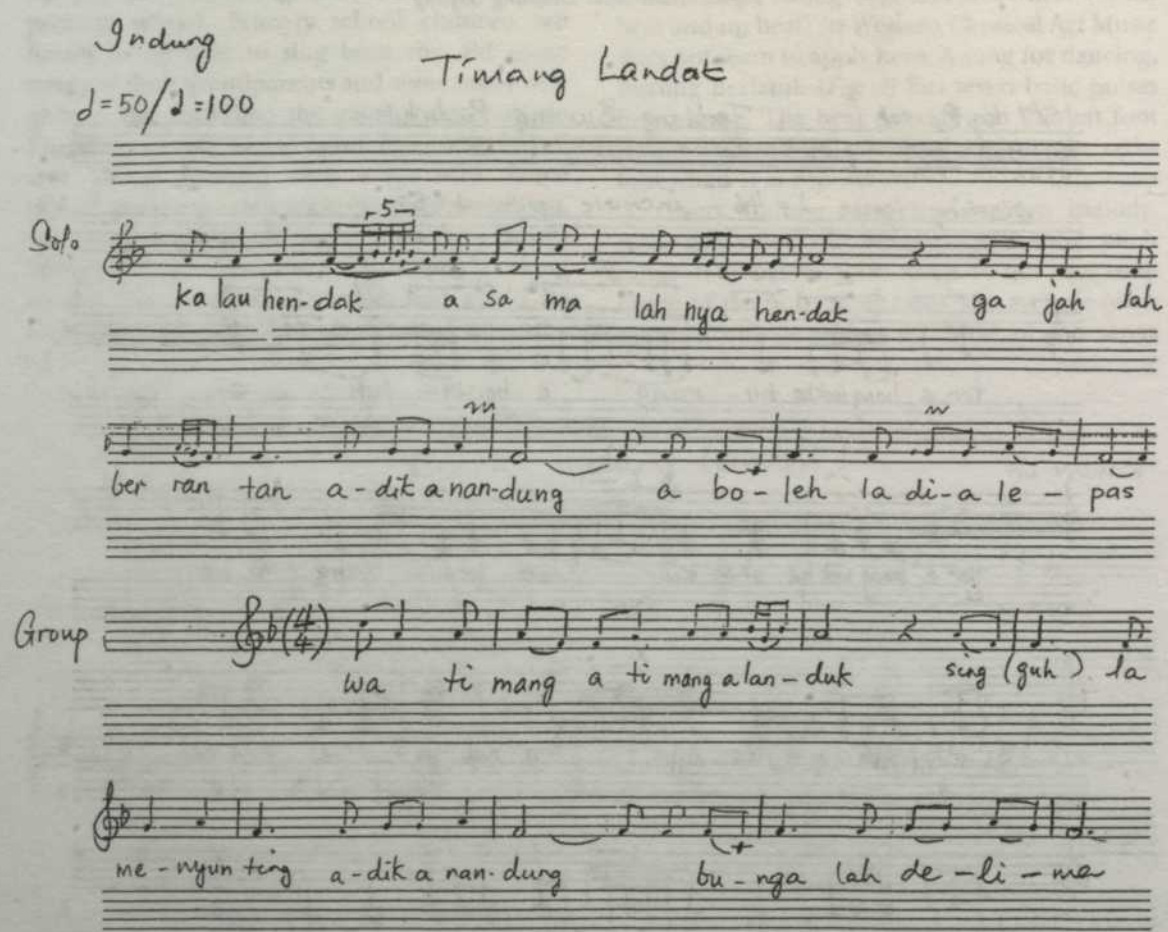

Fig. 4. Timang Landak

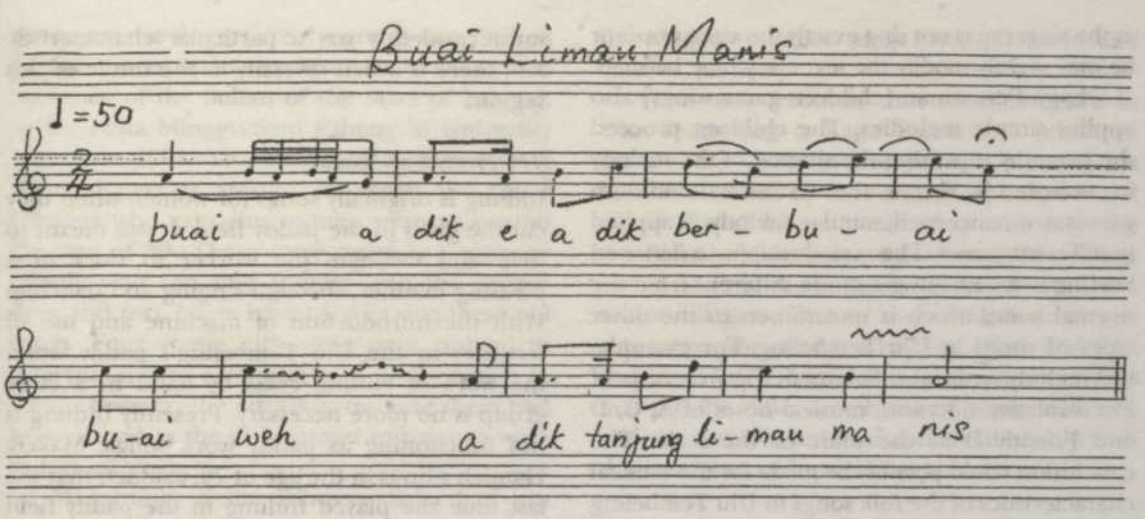

Fig. 5. Buai Limau Manis

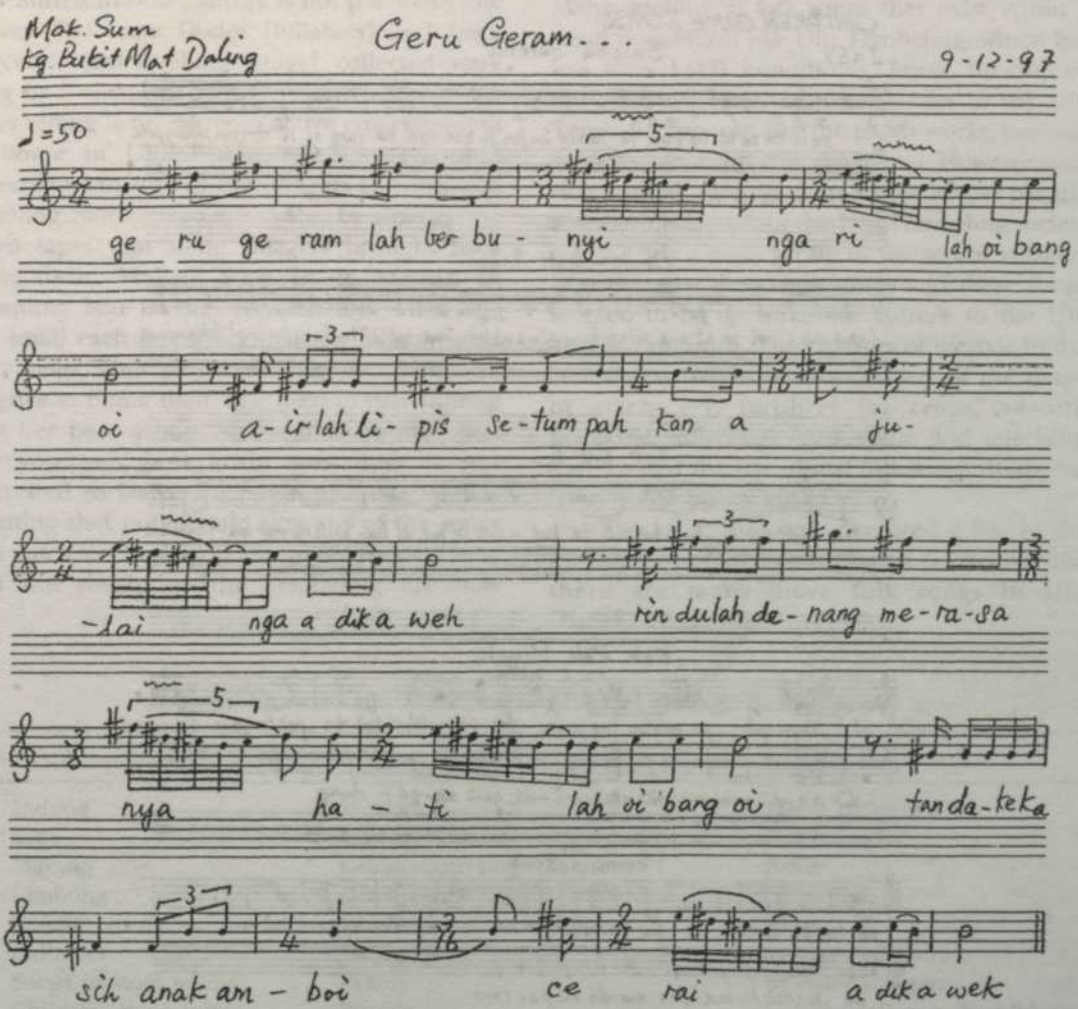

Fig. 6. Lagu Dodoi starts with the words 'Geru geram'

as the singer may not sing exactly the same words or he may slightly modify the text every time he sings.

Lagu Permainan [children game songs] also applies simple melodies. The children proceed the game by repeating the singing of the melody in unison. As far as the traditional children games are concerned, similar melody is applied to different games. The melody applies a flattened leading note, creating a mode different from the normal scale, which is uncommon to the other types of songs in Ulu Tembeling. For example, the melody of Selebu Seleba in *Fig.7* consists of , in a relative notation, musical notes of A, C, D and F, with D as the tonic of the scale. The conclusion could possibly be made for the musical characteristics of the folk songs in Ulu Tembeling at this early stage of research, is that each type of music evidently has a particular characteristic and there is a rich diversity in the music of this region.

The Practice of Music

Indung is originally songs for women when they cut the grass in the paddy field. It was meant to help and facilitate the worker to work in a pleasing manner, through singing and dancing. With the introduction of machine and use of fertilizer in the Ulu Tembeling's paddy work, the work of cutting grass by hand in a large group is no more necessary. Presently Indung is not functioning as paddy work songs. Makcik Hamiah who is in the age of 70, claimed that the last time she played Indung in the paddy field was when she was still a young mother. The

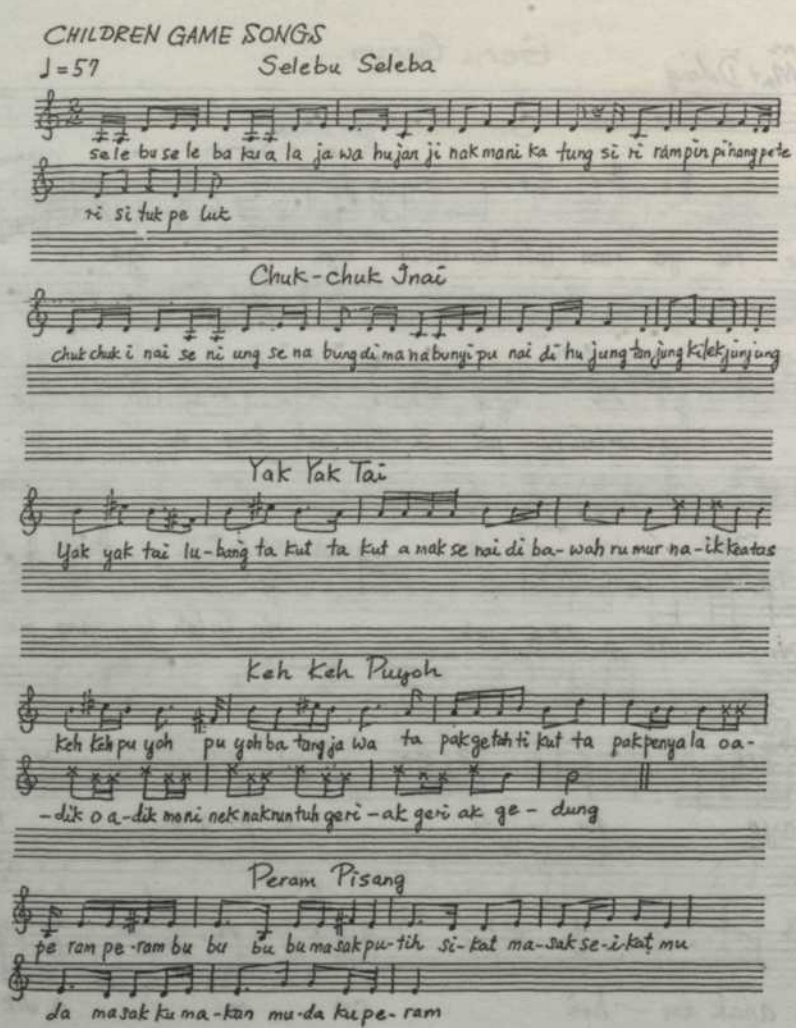

Fig. 7. Samples of Lagu Permainan

present active singers are the group that sings as performance upon requests such as to the audience of the Sultan of the State of Pahang, or for Pesta Minggu Seni Pahang in University Malaya in 1993. The estimated average age of these singers is around 50 years; the other villagers who can sing Indung were at around the age of 80. There were nearly no younger people who can sing Indung with the proper tune and text. None have tried to sing these old songs. Four young girls were once trained to sing Indung for a request of a performance in 1996. However, the efforts in training them had been halted as the girls moved to town to work as factory workers.

According to the villagers, Saba had not been sung for 20-30 years in Kampung Bantal and recently the leader of the singer group who had shifted to other village is not practicing the music. The Lagu Dodoi [lullabies] and Lagu Bercerita [story telling songs] collected were sung by 3 villagers, both were at the age of 80. Story telling is no more an active entertainment at home in Ulu Tembeling. The common entertainment style of the villagers presently are watching movies through video, by sharing the video tapes that some villagers brought back from town. Makcik Sum Imam Massah in Kampung Mat Daling, recalled that when she was small each family had its own lullabies and story songs. Singing of these songs was a common practice at home then. She used to play Indung with her peer group. She also mentioned that the younger generation nowadays is not interested to learn singing from their parents, resulting that none could sing any of the songs that she used to sing in the past. It is observed that the youth in Ulu Tembeling are now listening to popular songs through radio and cassette players.

The only tradition that remains active in Ulu Tembeling is Lagu Permainan [children game songs]. Out of five primary schools that had been visited by the researcher, half, but not all of the children, could sing and play the traditional children games, although every song varied slightly from those recorded from the senior villagers. One or two children can even sing some phrases from Indung. They said that they learned it from their grandmother. This may tell the difference between young children and the youth in terms of their relationship with their parents and grandparents.

CONCLUSION

One would be amazed by the number of types of Malay traditional folk songs that exist within a small population like Ulu Tembeling, which has less than 1,000 households. Music functioned differently in many of the activities of the Ulu Tembeling people, like the paddy works, healing, entertainment and children games. However such rich tradition of folk songs are no longer playing any significant role in the Ulu Tembeling society today. Only a small group of the senior villagers who can sing these folk songs and these songs seemed to be an unknown culture to the Ulu Tembeling youth. The changes of lifestyle in the community, with the introduction of the usage of machinery, fertilizer for crops, western medicine and drugs used, radio and television have caused the traditional folk songs disappear from the people's life.

This paper has only discussed a few of the folk songs of Ulu Tembeling. It is obvious that there are many more folk songs in Ulu

TABLE 1
Types of music in Ulu Tembeling, its functions and present practice

Type of music	Function	Present Practice
Indung	Working	When requested
Saba	Curing	None
Mayang	Celebration/Entertainment	None
Limbung	Celebration/Entertainment	None
Lukah	Celebration/Entertainment	None
Lullabies	Family	by elder villagers
Songs in story telling	Family	by elder villagers
Children game songs	Playing	by elder villagers & children
Dikir rebana	Celebration/Entertainment	In occasions

Tembeling left unstudied. A documentation of all the folk songs in Ulu Tembeling could provide valuable musical resources; these resources could be applied for historical study; cultural study; musical study; music composition and music education. Although the traditional folk songs in Ulu Tembeling are no longer actively practiced as in the past, there are villagers who can still sing these songs.

Every type of traditional folk songs in Ulu Tembeling has its own musical characteristic. Music educators could consider applying Ulu Tembeling's folk song as the cultural basis for music education, as the musical characters of the songs are closely related to the intonation and rhythm of the language text. Indung, Saba and Lagu Dodoi are treasury of short melodies, which are suitable for elementary music education. The Lagu Permainan [children game songs] are of great value for early childhood education.

In applying these traditional folk songs in music education, however, there are problems related to the song texts that need further consideration. This is mainly due to the song texts of Tarian Saba and Mayang, in which the content is based on animism believing. This content is no longer reflective of the present lifestyles in Malaysia and would not be of any educational value, especially as a text to be sung and practiced. As a way to solve this problem, one may consider composing other text that is more suitable to our present lifestyles upon the Tarian Saba's melodies. On the other hand, this may break the natural relationship of the music and the language. The musical value will decrease when it looses its original context.

From anthropological point of view, one of the potentials for research on music of Ulu Tembeling is the study on the relationship between musical characteristics and lifestyles. A specific rhythmic character may link with a particular action in working and so on. For example, the fact that many of the songs in Indung are slow in tempo and not consistent in meter, may relate to the body movement of grass cutting in the paddy field. The movement of grass cutting using knives with the bended body, if one has ever expereinced it, would definitely disturb the consistent meter of the music.Unless it is done by purpose as in the western classical opera, it is difficult and unnatural to sing a rhythmic and up tempo song with this movement. Studying the relationship between musical characteristics and lifestyles will also help to bring closer understanding upon the lives of a peasant society before urbanization. For example, one could study the villagers' believing system in the past through the study of the collection of healing songs in Tarian Saba.

As for the villagers themselves, the Ulu Tembeling community is experiencing a process of change in their music culture. The authentic music is disappearing and the imported popular music through mass media is becoming more dominant in the villagers' life. Music, which has played various functions in the past has now become solely as a means of entertainment.

The traditional folk songs have no longer been supporting their life in the way they did in the past, but recently have found a new context to survive. The traditional performing art is now a subject for tourism. The cases of Indung being requested to be performed as a cultural performance in the past few years are examples where the traditional folk songs have become a stage performance. If the performance of traditional folk songs can bring income to the village, the youth would want to learn and perform the traditional folk songs. In this way, the traditional folk songs may be revitalized. As for the researcher, it is worth studying and observing this whole process of change of musical culture in Ulu Tembeling, not only from the view of cultural preservation, but also from the views of tourism and cultural revitalization. In almost every other place in Asia, changes in their musical culture are happening as in Ulu Tembeling. The case study on Ulu Tembeling could help us to determine the appropriate directions in evaluation, conceptualization and application of traditional performing arts in any Asian society in the future.

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GLOSSARY

Ulu	Upper , inner
Lagu	Song; instrumental music
Permainan	Games; performance. Example: permainan Saba; permainan Indung
Dodoi	Lullaby
Bercerita	Story telling
Tarian	Dance
Puteri	Princess
Saba	The tree-like decoration used in the Tarian Saba
Gending	The accompanist for the shaman in Saba performance. Gending sings and plays the rebana.

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Testing for Seasonal Integration and Cointegration: An Expository Note with Empirical Application to KLSE Stock Price Data

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Keywords: Stock prices, seasonality, market efficienly

ABSTRAK

Tujuan kertas kerja ini adalah untuk menyiasat sifat-sifat bermusim siri harga saham mengikut sektor di Bursa Saham Kuala Lumpur (KLSE) untuk jangkamasa 1978:1 hingga 1992:3. Keputusan kajian mencadangkan bahawa indeks-indeks harga saham di KLSE mempamerkan punca satu bermusim, bukan sahaja pada frekuensi sifar tetapi dalam kebanyakkan kes pada frekuensi dua kali setahun. Hasil kajian yang mencadangkan harga saham mempamerkan integrasi bermusim memberi implikasi penting terhadap kointegrasi bermusim. Walau bagaimana pun keputusan-keputusan ujian kointegrasi bermusim mencadangkan bahawa indeks-indeks harga saham mengikut sektor di KLSE tidak berkointegrasi bermusim. Keputusan ini menyarankan bahawa hipotesis kecekapan bermaklumat pasaran saham tidak boleh di tolak untuk KLSE.

ABSTRACT

The purpose of this paper is to investigate the seasonal properties of the sectoral stock price series at the Kuala Lumpur Stock Exchange (KLSE) for the period 1978:1 to 1992:3. Our results suggest that the stock price indices at the KLSE exhibit seasonal unit roots, not only at the zero frequency, but in most cases at the biannual frequency. The finding that stock price indices exhibit seasonal integration has important implications for seasonal cointegration. However, our seasonal cointegration test results suggest that sectoral stock price indices at the KLSE are not seasonally cointegrated. These results imply that the informationally efficient stock market hypothesis cannot be rejected for the KLSE.

INTRODUCTION

The concept of cointegration first introduced by Granger (1981) relates to the notion of a long run or equilibrium relationship among two or more variables. Granger points out that the series may be unequal in the short run but they are tied together in the long run, that is, they move parallel to each other over time. According to Granger (1986) and Engle and Granger (1987), a very important consequence of cointegrated variables is that one variable can be used to predict the other. Granger (1986) notes that, "if x_t, y_t are I(1) and co-integrated, there must be Granger causality in at least one direction as one variable can help forecast the other."

The method of cointegration is a very useful tool in economics, particularly in searching for long-run relationships between various economic variables. Some real world examples were given by Granger (1986). He states that, "such variables are interest rates on assets of different maturities, prices of a commodity in different parts of the country, income and expenditure by local government and the value of sales and production costs of an industry. Other possible examples would be prices and wages, imports and exports, market prices of substitute commodities, money supply and prices and spot and future prices of a commodity."

However, before we test for cointegration among variables, we need to know the stationarity

status of the series. In empirical work, we only deal with stationary series. A non-stationary variable contains a unit root. It has neither fixed mean nor a constant variance. A non-stationary variable such as a random walk will not fluctuate about a certain mean. On the other hand, a stationary variable has a fixed mean and a constant variance. When plotted over time, a stationary variable is characterised by numerous fluctuations about the mean. For example, white noise is a stationary process, and such does not contain a unit root.

In cointegration analysis, it is important that the series under study have the same order of integration. Series X_t and Y_t are integrated of the same order, denoted by $X_t \sim I(d)$ and $Y_t \sim I(d)$, if the two time series required to be differenced d times to achieve stationarity. A series $X_t \sim I(1)$, that is integrated of order one, needs to be differenced only once to achieve stationarity, that is, to become I(0). According to Granger (1986), 'an I(0) series has a mean and there is a tendency for the series to return to the mean, so that it tends to fluctuate around the mean, crossing the value frequently and with rare extensive excursions.'

Inspired by the seminal work of Nelson and Plosser (1982), there is a vast literature that investigates on whether macroeconomic time series contain a unit root. Among others, studies by Schwert (1987), Wasserfallen (1986) and Vujosevic (1992) conclude that many macroeconomic time series contain a unit root. The finding that many economic time series have a unit root (i.e. are nonstationary in their levels) led to the concept of cointegration suggested by Granger (1981). Furthermore, the existence of cointegration among these nonstationary economic time series provides a statistical foundation for the use of error-correction models. The notion of integration, cointegration and error-correction modelling has been extensively tested and investigated in recent years.

More recently, attention has been directed to the testing of integration and cointegration for the presence of seasonality in economic time series. Previous studies that used high frequency (monthly and quarterly) data have either ignored the seasonal components or used seasonal adjusted data in their analysis. Osborn *et al.* (1988) and Hylleberg *et al.* (1990) have pointed out that high frequency economic time series might also have seasonal unit roots besides the unit root at zero frequency. Despite this warning, most researchers avoided the issue of seasonality in economic time series. Kunst (1994) gives three reasons for disregarding the role of seasonality in economic study. Firstly, researchers assumed that the dummy-style determination system can appropriately eliminate seasonal variations in economic time series. Secondly, researchers regard seasonal phenomena as a nuisance and as such seasonal adjustment procedures are used to eliminate them. Thirdly, the usefulness of findings for seasonal integration and cointegration for empirical tests and application has yet to be established.

Nevertheless, the important role of seasonality in economic time series has been given serious attention in recent years. Among the most recent studies include Osborn (1990), Engle *et al.* (1993), McDougall (1994, 1995), Linden (1994), Hurn (1993), Hylleberg *et al.* (1993) and Sarantis and Stewart (1993). The finding of the studies on seasonality in macroeconomic time series by Osborn (1990) for the United Kingdom, Otto and Wirjanto (1990) for Canada, Ghysels *et al.* (1994) for the United States, McDougall (1995) for New Zealand and Hylleberg *et al.* (1993) for several developed countries suggest that many macroeconomic time series exhibit significant seasonality. Osborn (1990) concludes that the finding for seasonal integration in those economic time series have important implications for seasonal cointegration.

McDougall (1994) and Hurn (1993) investigate the long-run relationship between money and income for New Zealand and South Africa respectively. Although McDougall (1994) finds a nonseasonal relationship between money and income for the New Zealand economy, Hurn finds support for the existence of seasonal cointegration in the South African monetary data. Hurn notes that the inclusion of seasonal components improves the overall performance of the final error-correction models. On the other hand, studies by Linden (1994) on labour demand in Finnish manufacturing, and Engle *et al.* (1993) on the Japanese consumption function, provide evidence in favour of seasonal cointegration. Nevertheless, Sarantis and Stewart (1993) found that exchange rates and relative prices of several developed countries under study do not support the existence of seasonal cointegration.

In a more recent study, Moosa (1995) clearly indicates the importance of the order of (seasonal) integration of time series variables. Moosa finds out that previous studies on Australian consumption function are mis-specified and as a result performed poorly as expected. Moosa (1995) concludes that, "the failure of these equations is due to the use of inappropriate filters (by overlooking the time series properties of the variables) and faulty error correction terms (by only allowing for cointegration at the zero frequency or the long run and not at other frequencies). A finding of this study is that Australian non-durable consumption and disposable income are cointegrated at the frequency 1/4 (annual cycle), implying that the consumption-income relationship should be modelled as a seasonal error correction model."

Despite the increasing interest in testing for seasonality in macroeconomic series among researchers, most of the existing studies, except for Hurn (1993), are mainly confined to the developed nation. Therefore, there is an imperative need to conduct a similar study to investigate the seasonal behaviour of macroeconomic time series of the developing economies. Thus, the primary aim of the paper is to complement the existing literature of testing for seasonality in macroeconomic time series of the developing countries.

METHODOLOGY

The importance of seasonality in economic time series has been recognised and has been given proper treatment in economic literature. The work of Box and Jenkins (1970) implicitly assumes that there are seasonal unit roots in the series by using the seasonal differencing filter. Other researchers prefer using seasonally adjusted data in the analysis. However, these approaches have been criticised by Miron (1992) and Ghysels (1988, 1990, 1992). They pointed out that seasonal adjustment might lead to wrong inference about economic relationships between the series under study. The seasonal adjustment biases the outcome toward accepting the null hypothesis that a unit root exists. Olekalns (1994) concludes that, 'tests of the unit root hypothesis should not be carried out with seasonally adjusted data.'

When comparing the performance of a series between seasonally adjusted and seasonally unadjusted data, Ghysels (1990, 1992) found that the nature of unit root between the seasonally adjusted and seasonally unadjusted series gave contradictory results. Ghysels concludes that the seasonal adjustment procedure might alter the outcome of the conventional test and therefore gave substantially different results. On the other hand, Miron (1992) points out that seasonal fluctuations are not a nuisance, instead seasonality has economic importance in economic analysis and acts as a source of information in understanding economic relationships.

Thus, the problems associated with seasonal adjustment have led to the examination of seasonal unit roots and hence tests to determine orders of seasonal integration for economic time series. The essence of seasonality is that not only must each of the series be integrated of the same order but they must be seasonally integrated of the same order, otherwise the estimates of the cointegrating equations will be inconsistent. In other words, the estimates result in a spurious regression problem (Hylleberg *et al.* 1990).

Testing for Seasonal Unit Roots

For a seasonally unadjusted economic time series, the concept of integration will include the possibility of seasonal unit roots. A seasonal economic time series, X_t, is said to be integrated of order (d, D), that is $X_t \sim I(d, D)$ if the series is stationary after first period differencing d times (unit root) and seasonal differencing D times (seasonal unit root) (see Osborn *et al.*, 1988).

According to Hylleberg *et al.* (1990) and Engle *et al.* (1993), for quarterly data, the seasonal difference operator $(1-B^4)$ can be decomposed into four possible roots in the generating process as follows:

$$(1-B^4) = (1-B)(1+B)(1-iB)(1+iB) \qquad (1)$$

In equation (1), the unit roots are 1, -1, i and –i which correspond to zero frequency, one-half (1/2) cycle per quarter or two cycles per year in quarterly data and one fourth (1/4) period cycle corresponding to one-quarter cycle per quarter or one cycle per year in quarterly data. However, the last root , -i, is indistinguishable from the one at i with quarterly data and therefore it is treated as the annual cycle.

The testing procedure for seasonal unit root has been provided by Hasza and Fuller (1982),

Dickey *et al.* (1984), Osborn *et al.* (1988), Osborn (1990), Hylleberg *et al.* (1990) and Engle *et al.* (1993). The latter two seasonal unit root testing procedures are the most popular among researchers. Furthermore, Ghysels *et al.* (1994) found out that Hylleberg *et al.* (1990) (thereafter HEGY) procedure compares favourably with other alternative procedures, in particular, with Dickey *et al.* (1984) tests.

The HEGY (1990) approach consists in estimating the following regression:

$$\Delta_4 x_t = \pi_1 y_{1t-1} + \pi_2 y_{2t-1} + \pi_3 y_{3t-2} + \pi_4 y_{3t-1} + \sum_{i=1}^{p} \pi_4 x_{t-i} + \upsilon_t \quad (2)$$

where $y_{1t} = (1+B+B^2+B^3)x_t$, $y_{2t} = -(1-B+B^2-B^3)xt$ and $y^{3t} = -(1-B^2)x_t$. For quarterly time series data, deterministic components are added in equation (2). The test regression now becomes

$$\Delta_4 x_t = \alpha_0 + \alpha_1 SD_{1t} + \alpha_2 SD_{2t} + \alpha_3 SD_{3t} + \theta t + \pi_1 y_{1t-1} + \pi_2 y_{2t-1} + \pi_3 y_{3t-2} + \pi_4 y_{3t-1} + \sum_{i=1}^{p} \Delta_4 x_{t-i} + \varepsilon_t \quad (3)$$

where α_0 is a constant, t is a linear time trend and SD_{it}'s are quarterly seasonal dummy variables. The test for seasonal unit roots is by running ordinary least square (OLS) on equation (3) and the test statistics on π's can be used for inferences. According to a simulation study by Ghysels *et al.* (1994), the inclusion of a constant and seasonal dummies appears to be a prudent decision in testing for seasonal unit roots. Ghysels *et al.* (1994) further conclude that, "it was found that when the data-generating processes have seasonal dummies, the regression without seasonal dummies seriously distorts the test result [i.e. it leads to a large bias in the size or too low power]. Hence, although inclusion of too many lags or irrelevant deterministic terms (i.e. a constant, seasonal dummies, and/or a trend) tends to reduce the power of the tests, the safe strategy in empirical applications is the inclusion of these (possibly irrelevant) terms in the model."

To test for a unit root at zero frequency (i.e. $x_t \sim I_0(1)$ we simply perform a t-test on $\pi_1 = 0$. To test for root -1 (the biannual frequency unit root) that is, $x_t \sim I_{1/2}(1)$, a test on $\pi_2=0$ is performed. For the complex roots (an annual frequency unit root) or $x_t \sim I_{1/4}(1)$, we can perform either a joint *F*-test of $\pi_3=\pi_4=0$, or two sequential t-tests of $\pi_4=0$ and then $\pi_3=0$. For a series to contain no seasonal unit roots, $\pi_2=0$ and the joint *F*-test of $\pi_3=\pi_4=0$ must both be rejected. On the other hand, for a series to be stationary, it must have no unit roots, hence, it must be established that each of the t-test of $\pi_1=\pi_2=0$ and the joint *F*-test of $\pi_3=\pi_4=0$ are rejected. The critical values can be found in Hylleberg *et al.* (1990).

In equation (3), the choice of the truncation lag parameter, p, can be determined according to a variety of lag selection criteria. Engle *et al.* (1993) pointed out that the power and size of the unit root tests depend critically on the 'right' augmentation being used. Too many parameters will decrease the power of the tests while too few will render the size far greater than the level of significance. Engle *et al.* (1993) rely on the augmentation approach by estimating equation (3) for some lag length. After establishing which of the lags are statistically significant, the equation is then re-estimated by including only the statistically significant autoregressive terms. The net result is to leave gaps or 'holes' in the lag distribution of the autoregressive terms in equation (3). Ghysels *et al.* (1994) used Hall's 'data-based model-selection' procedure consisting in estimating the number of autoregressive terms according to the longest lag with a statistically significant coefficient, beginning with a maximum lag length of 7 quarters. A general-to-specific approach used by McDougall (1994), which was based on Perron (1989), consists in starting with a given number of arbitrary maximum lagged regressors, say k, and then successively reduced until the last included lag has significant coefficient based on the usual t-test. On one hand, Lee and Siklos (1991) used the well known Akaike and Schwarz criteria, and on the other, Otto and Wirjanto (1990) and Osborn (1990) based their analysis on the significance of the Lagrange Multiplier test for serial correlation to choose the 'best' model for each series. Yet others have employed the Akaike's (1969) Final Prediction Error (FPE) criterion in selecting the optimal lag length. Hsiao (1981) points out that the FPE criterion is equivalent to using an *F*-test but with a varying level of significance. As Judge *et al.* (1982) argued, the intuition behind this procedure is that as the lag length on the variable under consideration increases, the first term of FPE increases while the second term decreases and as a result, these opposing forces are balanced when their product reaches a minimum. Furthermore, according to Hsiao (1979), 'the

criterion tries to balance the risk resulting from the bias when a lower order is selected and the risk resulting from the increase of variance when a higher order is selected by choosing the specification that gives the smallest FPE.'

Seasonal Cointegration and Error Correction Model

According to HEGY (1990), 'a pair of series each of which is integrated at frequency ω are said to be cointegrated at that frequency if a linear combination of the series is not integrated at ω.' For a two-variable case consisting of X and Y, where y_t and $x_t \sim I_\omega(1)$, ω =0, 1/4, 1/2, 3/4, there may exist one or no cointegrating vector at each frequency. The general form of the error-correcting mechanism which allows for cointegration (at one cointegrating vector) at all frequencies, ω =0, 1/4, 1/2, 3/4, is shown to be

$$\Delta_4 y_t = \sum_{i=1}^{q} \phi_i \Delta_4 y_{t-i} + \sum_{j=1}^{p} \lambda_j \Delta_4 x_{t-j} + \gamma_1 U_{t-1} + \gamma_2 v_{t-1} + \gamma_3 w_{t-2} + \gamma_4 w_{t-3} + \eta_t \quad (4)$$

where u^{t-1}, v_{t-1}, w_{t-2} and w_{t-3} are lagged residuals of the following respective cointegrating equations (5), (6) and (7), derived by Engle *et al.* (1993),

$$u_{1t} = y_{1t} - \alpha_1 x_{1t} \quad (5)$$

$$v_{1t} = y_{2t} - \alpha_2 x_{2t} \quad (6)$$

$$w_{1t} = y_{3t} - \alpha_3 x_{3t} - \alpha_4 x_{3t-1} \quad (7)$$

where in each case the x^{it} and y_{it} (i=1,2,3) represent the zero, biannual and annual frequencies which are run with or without deterministic components including an intercept (I), seasonal dummies (SD's) and a time trend (T).

The residuals u, v and w are tested for their stationarity characteristics according to the following manner outlined by Engle *et al.* (1993). The test for noncointegration at the zero frequency can be performed by establishing the following equation

$$\Delta u_t = \pi_1 u_{t-1} + \sum_{i=1}^{k} \delta_i \Delta u_{t-i} + \text{deterministic components} + \tau_{1t} \quad (8)$$

When testing for noncointegration at the biannual frequency (i.e. 1/2), we run the following auxiliary regression

$$v_t + v_{t-1} = \pi_2(-v_{t-1}) + \sum_{i=1}^{k} \delta_i(v_{t-i} + v_{t-i-1}) + \text{deterministic components} + \tau_{2t} \quad (9)$$

Similarly to the above tests, the test for seasonal noncointegration at the annual frequency (i.e. 1/4 and 3/4) can be performed by estimating the following equation:

$$w_t + w_{t-2} = \pi_3(-w_{t-2}) + \pi_4(-w_{t-1}) + \sum_{i=1}^{k} \delta_i(-w_{t-i} + -w_{t-2}) + \text{deterministic components} + \tau_{3t} \quad (10)$$

The t-values of the test statistics of π's can be used for inference for noncointegration at zero, biannual and annual frequencies. However, for testing for noncointegration at the annual frequency, the F-value of the joint test $\pi_3=\pi_4=0$ is computed together with the t-values for $\pi_3=0$ and $\pi_4=0$. The critical values for π_1 and π_2 are tabulated in Engle and Yoo (1987). On the other hand, the critical value for F-statistic for $\pi_3 \cap \pi_4=0$ are tabulated in Engle *et al.* (1993).

Description and Sources of Data Used

In this paper, the testing for seasonal integration and cointegration is applied to sectoral stock prices at the KLSE for the period 1978:1 to 1992:3. The stock price indices are the Composite, Industrial, Finance, Property, Agriculture and Tin. The stock price indices were collected from various issues of the Investors Digest published monthly by KLSE. All data used in the analysis are transformed into natural logarithms before estimation.

DISCUSSION ON EMPIRICAL RESULTS

Results of Seasonal Unit Root Tests

The results of applying the HEGY test for seasonal unit roots are presented in Table 1. Based on equation (3), each of the variables in the logarithmic form is then regressed against (i) without the deterministic components, (ii) a constant, (iii) a constant and seasonal dummies, (iv) a constant and trend, and (v) with a constant, seasonal dummies and trend. In Table 1, we report the final specification of equation (3) which was based on the chosen optimal lag length. The optimal lag length, p, was determined using the Perron's (1989) liberal approach which consists in starting with a given number of lagged dependent variables and paring down the model by the usual t-statistics. If the t-statistics on the last lagged term is less than 1.6, the term is dropped from the model. The process is repeated until the t-statistics on the last lagged coefficient is greater

TABLE 1
HEGY tests for seasonal unit roots

Variables	Deterministic components	π_1	π_2	π_3	π_4	$\pi_3 \cap \pi_4$	Lag	LM(4)	Significance of deterministic components *I*	*SD*	*Tr*	Frequencies with a unit root
Composite	–	0.91	-3.43**	-3.02**	-3.59**	11.13**	1	4.12	-	-	-	0
	I	-1.96	-3.34**	-3.21**	-3.24**	10.59**	1	1.11	**	-	-	0
	I, SD	-1.84	-3.51**	-3.57	-3.67**	13.27**	1	2.66	ns	ns	-	0
	I, Tr	-1.92	-2.16**	-2.52**	-0.53	3.39**	8	7.54	ns	-	ns	0
	I, SD, Tr	-2.20	-2.60	-3.77**	-0.81	7.75**	12	7.09	ns	**	**	0, 1/2
Industrial	–	1.00	-3.45**	-3.49**	-3.01**	10.75**	1	5.58	-	-	-	0
	I	-1.47	-3.36**	-3.60**	-2.80**	10.58**	1	3.36	ns	-	-	0
	I, SD	-1.37	-3.59**	-3.91**	-3.23**	13.03**	1	5.76	ns	ns	-	0
	I, Tr	-2.15	-1.89	-2.41**	-0.62	3.18**	8	4.96	**	-	**	0, 1/2
	I, SD, Tr	-2.34	-2.54	-3.32	-0.79	6.09	12	4.94	**	ns	**	0, 1/2, 1/4
Finance	–	1.13	-3.47**	-3.35**	-2.96**	10.12**	1	5.40	-	-	-	0
	I	-2.62	-2.93**	-3.13**	-0.76	10.00**	3	1.02	**	-	-	0
	I, SD	0.43	-2.28	-3.81**	-0.61	7.64**	12	6.01	ns	**	-	0, 1/2
	I, Tr	-2.85	-2.25**	-2.84**	-0.14	4.08**	8	7.63	**	-	**	0
	I, SD, Tr	-2.51	-2.43	-4.33**	-0.42	9.62**	12	6.60	**	**	**	0, 1/2
Property	–	0.61	-2.51**	-3.37**	-2.11**	9.10**	2	5.98	-	-	-	0
	I	-3.25**	-2.14**	-3.08**	0.15	4.76**	5	2.48	**	-	-	stationary
	I, SD	-2.50	-2.24	-3.87**	0.36	7.51**	8	2.47	**	**	-	0, 1/2
	I, Tr	-3.29	-2.07**	-3.10**	0.25	4.83**	5	3.93	**	-	ns	0
	I, SD, Tr	-2.95	-2.30	-3.97**	0.39	7.90**	8	5.77	**	**	ns	0, 1/2
Agriculture	–	0.53	-3.09**	-3.35**	-2.86**	9.74**	1	5.42	-	-	-	0
	I	-3.05**	-3.08**	-3.70**	-2.32**	9.60**	1	3.49	**	-	-	stationary
	I, SD	-1.83	-3.65**	-2.60	-0.87	3.70	9	2.23	ns	**	-	0, 1/4
	I, Tr	-3.32	-2.89**	-3.77**	-1.90**	8.98**	1	4.54	**	-	ns	0
	I, SD, Tr	-3.25	-3.66**	-3.66**	-0.90	7.46**	4	4.08	**	**	**	0
Tin	–	-0.33	-4.05**	-2.27**	-1.72	4.08**	3	3.81	-	-	-	0
	I	-2.40	-2.34**	-2.63**	-0.11	3.49**	8	5.51	**	-	-	0
	I, SD	-2.60	-2.31	-4.20**	-0.13	8.92**	12	5.70	**	**	-	0, 1/2
	I, Tr	-2.37	-2.34**	-2.64**	-0.17	3.54**	8	5.33	**	-	ns	0
	I, SD, Tr	-2.48	-2.29	-4.18**	-0.16	8.86**	12	7.25	**	**	ns	0, 1/2

Notes; The LM Chi-Square statistics for serial correlation with 4 lags is 9.48 with 4 degree of freedom (5%). ns denotes not significant. Asterisk, **, denotes statistically significant at five percent level. Critical values for 48 observations and at 5 percent significance level are as follows (see Hylleberg *et al.* 1990):

Deterministic components	π_1	π_2	π_3	π_4	$\pi_3 \cap \pi_4$
-	-1.95	-1.95	-1.93	-176/1.72	3.26
I	-2.96	-1.95	-1.90	-1.72/1.68	3.04
I, SD	-3.08	-3.04	-3.61	-1.98/1.96	6.60
I, Tr	-3.56	-1.91	-1.92	-1.70/1.64	2.95
I, SD, Tr	-3.71	-3.08	-3.66	-1.91/1.97	6.55

than 1.6. A series of autoregressions is estimated for equation (3) by varying the lag order p from 1 to 12. For each lag length chosen, the presence of serial correlation in the residuals is checked using the Breusch-Godfrey LM test for fourth-order autoregression[1]. All final equations estimated show that the null hypothesis of no serial correlation can be rejected at 5 percent significance level.

Several observations can be derived from the results presented in Table 1. First, most of the final specifications indicate a shorter lag length. The evidence is stronger for Agriculture and followed by Composite and Industrial sectors. Secondly, in majority of the cases, the HEGY tests are not robust to the inclusion of deterministic components in the equation. For Composite stock price, except one, the results overwhelmingly indicate that seasonal unit roots cannot be rejected at the zero frequency. When a constant, seasonal dummies and trend were included in the equation, the results suggested that seasonal unit roots could not be rejected at frequency zero and 1/2 for the Composite stock price. In the cases of Finance and Tin sectors, the results suggested that seasonal unit roots could not be rejected at frequency zero and biannual when a constant and seasonal dummies or all three deterministic components were included in equation (3). Similar results were also obtained for the Property sector except one, in that, an equation with a constant, the HEGY test suggest that Property stock price is stationary in levels. The HEGY test also suggested that Agriculture stock price is stationary in levels when a constant is included in equation (3). However, when a constant and seasonal dummies were included in the equation, the results suggested that seasonal unit root could not be rejected at frequency zero and 1/4. Last but not least, in case of Industrial stock price, results suggest that seasonal unit roots cannot be rejected at all frequencies (i.e. 0, 1/2 and 1/4) when a constant, seasonal dummies and trend are included; at frequencies zero and 1/2 when a constant and trend are included; and at frequency zero when either a constant or a constant and seasonal dummies or no deterministic components are included in the model.

Since the HEGY test is sensitive to the inclusion of deterministic components, our question is: How do we select the appropriate HEGY regression equation? In this paper, we do this by infering at the significance of the deterministic components. The appropriate HEGY regression equation selected is the one with the most significance deterministic components. Based on this criterion, the appropriate HEGY regression equation for Composite stock price is the one which includes a constant, seasonal dummies and a trend; Industrial with a constant and a trend; Finance with all three deterministic components; Property with a constant and seasonal dummies; Agriculture with a constant, seasonal dummies and trend; and Tin with a constant and seasonal dummies. Based on these results, we conclude that seasonal unit roots at zero and biannual frequencies are suggested for all stock price indices, except for Agriculture stock price where seasonal unit root at zero frequency is suggested.

Results of Seasonal Cointegration Tests

The results of the above unit root tests indicate that stock price series are integrated of order one but at some specific frequencies. Having established that the stock price indices are seasonally integrated, our next attempt is to investigate whether these stock price series are seasonally cointegrated along the lines suggested by Engle *et al.* (1993). In our case, in the quarterly series, cointegration between sectoral stock price integrated at the biannual frequency is said to exist if there is at least one linear combination of the series that is stationary at that frequency. For the annual frequency case, cointegration is said to exist if there is at least one linear combination of the series, all integrated at the annual frequency and the series lagged one quarter which is stationary at that particular frequency.

Following Engle and Granger's (1987) two-step procedure, the test for seasonal noncointegration at a particular frequency is based on a test for a unit root at that frequency

[1] According to Harvey (1985), the LM principle for testing for serial correlation yields more satisfactory test compared to the Box-Ljung test.

in the residuals from a first step regression. The first step regression is a regression of one of the series on the other, but after proper transformations so that no unit roots exist at other frequencies. As mentioned earlier, a test of noncointegration at the long-run frequency is a test for a unit root at the zero frequency in the residuals, μ_t, from a regression y_{1t} on x_{1t} where y_{1t} is $(1+B+B^2+B^3)y_t$, that is the sum of four consecutive values of say, Industrial stock price series while x_{1t} is defined analogously for say, Finance stock price series. Likewise, a test of noncointegration at the biannual frequency is a test of there being a unit root at that frequency in the residuals, v_t, from a regression of $y_{2t} = -(1-B+B^2-B^3)y_t$ on $x_{2t} = -(1-B+B^2-B^3)x_t$. And for the annual frequency the first step regression is $y_{3t} = -(1-B^2)y_t$ on $x_{3t} = -(1-B^2)x_t$ and x_{3t-1} and the test for a unit root at the annual frequency in the residuals w_t is based on the *F*-value for $\pi_3=\pi_4=0$ in the regression $(w_t+w_{t-2}) = \pi_3(-w_{t-2}) + \pi_4(-w_{t-1})$. In testing for cointegration, we allow for augmentation of the lagged dependent variable so as to induce white noise following Perron's (1989) liberal approach mentioned earlier.

Seasonal cointegration is usually conducted between those series which appeared to be seasonally integrated at common frequencies. In our case, we conducted a pairwise seasonal cointegration at the long-run between Industrial, Finance, Property, Agriculture and Tin. On the other hand, seasonal cointegration at the biannual frequency is conducted between Industrial, Finance, Property and Tin. The results of testing for seasonal cointegration at the long-run and biannual frequencies are presented in Tables 2 and 3 respectively. Looking through Table 2, the results suggest that sectoral stock prices at the KLSE are not cointegrated at the zero frequency. The t-statistics for π_1 in all cases are smaller (in absolute term) than the critical value tabulated in Engle and Yoo (1987). On the other hand, results in Table 3 also suggest that cointegration at the biannual frequency can also be rejected between the sectoral stock prices at the KLSE. In all cases the t-statistics for π_2 are smaller (in absolute term) than the critical value tabulated in Engle and Yoo (1987).

CONCLUSION

More recently, the work of Hylleberg *et al.* (1990) and Engle *et al.* (1993) has enabled researchers to investigate the time series properties of an economic series when they contain seasonal components not only at the zero frequency but

TABLE 2
Tests for cointegration at frequency zero: the long-run

Regressand	Regressor	Cointegrating regression			Tests for unit roots in residuals		
		Coefficient on regressor	R^2	D.W.	Augmented Dickey-Fuller test π_1	Lag	LM(4)
Industrial	Finance	0.507	0.829	0.07	-1.86	5	2.21
	Property	0.383	0.894	0.09	-1.55	5	1.79
	Agriculture	0.704	0.817	0.08	-1.31	5	5.67
	Tin	0.769	0.961	0.19	-3.19	10	2.59
Finance	Property	0.548	0.966	0.09	-2.11	5	3.46
	Agriculture	1.226	0.913	0.12	-1.72	9	2.94
	Tin	0.422	0.775	0.05	-2.24	5	3.14
Property	Agriculture	1.981	0.737	0.11	-1.71	9	6.92
	Tin	1.089	0.605	0.05	-0.87	11	3.16
Agriculture	Tin	0.360	0.691	0.09	-1.00	8	4.28

Notes: The t-statistics for π_1 isdistributed as described in Engle and Granger (1987) and Engle and Yoo (1987). The critical value at five percent significance level is 3.29 for T equals 50 observations. The LM Chi-Square statistics for serial correlation with four lags is 9.48 with four degree of freedom (5%). All cointegrating regressions and the auxillary regressions are estimated with a constant and seasonal dummies.

TABLE 3
Tests for cointegration at frequency 1/2: biannual cycle

Regressand	Regressor	Cointegrating regression			Tests for unit roots in residuals		
		Coefficient on regressor	R^2	D.W.	Augmented Dickey-Fuller test π_2	Lag	LM(4)
Industrial	Finance	0.886	0.725	2.67	-1.85	11	5.76
	Property	0.624	0.671	2.84	-2.87	7	4.12
	Tin	0.729	0.648	2.88	-2.44	4	1.85
Finance	Property	0.662	0.813	2.52	-3.06	7	4.94
	Tin	0.696	0.636	1.88	-3.07	3	6.48
Property	Tin	0.938	0.622	1.50	-2.21	11	4.99

Notes: The t-statistics for π_2 is distributed as described in Engle and Granger (1987) and Engle and Yoo (1987). The critical value at five percent significance level is 3.29 for T equals 50 observations. The LM Chi-Square statistics for serial correlation with four lags is 9.48 with four degree of freedom (5%). All cointegrating regressions and the auxillary regressions are estimated with a constant and seasonal dummies.

also possibly at the biannual and annual frequencies. The fact that a time series is integrated at seasonal frequencies implies that it possesses long memory properties so that shocks tend to last permanently and moreover they tend to alter the seasonal pattern permanently. The finding that time series exhibit seasonal unit roots at different frequencies suggest that some series may be cointegrated at the seasonal frequencies. Cointegration established at different frequencies will lead to an interesting seasonal error correction model. Moosa (1995) points out that an error correction model will be misspecified if cointegration at the seasonal frequencies is present but is not accounted for.

In this paper we have endeavoured to investigate the seasonal properties of sectoral stock price indices at the KLSE, by applying the recent technique of seasonal unit root test proposed by Hylleberg *et al.* (1990). In our analysis, we also conducted the seasonal cointegration test proposed recently by Engle *et al.* (1993) to the sectoral stock price data. Generally, we found that stock price indices at the KLSE exhibit seasonal unit roots, not only at the zero frequency, but, in most cases at the biannual frequency. However, when tested for seasonal cointegration, our results suggest that sectoral stock price series are not seasonally cointegrated either at zero frequency (in the case of Industrial, Finance, Property, Agriculture and Tin) or the biannual frequency (in the case of Industrial, Finance, Property and Tin). An important implication of this study is that the informationally efficient stock market hypothesis cannot be rejected for the Kuala Lumpur Stcok Exchange for the period under study. This implies that investors cannot earn abnormal profit consistently using the returns of sectoral stock price to predict the returns of other sectoral stock price at the KLSE.

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Review

Aviation's Impact on Agriculture and Its Animal Habitat

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Keywords: Aviation, cropdusting, agriculture, damage, compensation

ABSTRAK

Pengangkutan udara turut memainkan peranan penting dalam pertanian, yang mana kapal terbang digunakan untuk pendebuan tanaman. Kebaikan pendebuan tanaman memang terbukti tetapi ia juga merupakan aktiviti yang mungkin merosakkan alam sekitar.

Artikel ini membincangkan beberapa aspek berkaitan, yang dibentangkan dalam Rome Convention of 1952 tentang punca kerosakan permukaan kepada pihak ketiga. Turut dibincangkan ialah kesesuaian undang-undang negara dan undang-undang kes bersama-sama dengan kebertanggungjawaban terhadap kerosakan yang berpunca daripada semburan. Memandangkan kapal terbang jenis ini perlu terbang pada altitud yang rendah bunyi mungkin juga mengganggu haiwan.

ABSTRACT

Aviation also plays a role in agriculture, where aircraft are used for cropdusting. The benefits of cropdusting are evident but this is also an activity, which may lead to damage to the environment. The article discusses some of these aspects, viewed in the light of the Rome Convention of 1952 on damage caused to third parties on the surface.

Also the applicability of national laws and case law is considered, together with the responsibility for the damage caused by spraying. As this kind of aircraft has to fly at low altitude, the noise may also affect animals.

INTRODUCTION

The 20th century, now drawing to a close, has been marked by an astounding evolution in technology. New achievements reached out into all corners of the world, affecting and enhancing many areas of human endeavour. One might be inclined to think in the first place of the dramatic evolution in the telecommunications sector, and also in the field of civil aviation. There is a sector in civil aviation that has perhaps not attracted that much attention: it is the sector of 'agricultural aviation': cropspraying or cropdusting. Agriculture has experienced a tremendous impact as a result of the use of aircraft. And not only agriculture: forestry and fisheries are also affected by cropdusting activities.

Using aircraft for agricultural purposes is not an entrepreneurial activity of recent date: experiments were conducted already at a very early stage of aviation, but large-scale developments did not occur until after World War II.[1]

Benefits and Dangers of these Activities

There is no doubt that the benefits of cropdusting can be enormous. Without it, the cultivation of very large areas (superfarms) in

1. P.J. McBreen, 'Legal Implications of agricultural aviation', 18 JALC 1951, p.399-408.

the USA would not have been possible. The same goes for banana plantations in Central America. But, while emphasizing the benefits, we must not overlook the dangers inherent to its use. Agricultural aviation is a hazardous activity. It causes, relatively speaking, many accidents, given the small number of aircraft and flying hours involved. To do their job the aircraft have to fly at low altitude, which is risky, and the pressure of the workload on the pilots is high. More importantly, perhaps, are the dangers to the environment that may be caused by careless cropdusting. The strictest precautions and rules have to be observed and enforced. This aspect will have to be closely watched in the near future.

Recently, however, these drawbacks have been increasingly offset by using the most modern types of aircraft and helicopters, and technological improvements have already had a positive effect on the accident rate.

In the Netherlands, according to Article 2 of the Ministerial Decree concerning the exempted for low flying aircraft engaged in crop spraying, flying within 15 meters on either side of high voltage cables is prohibited. It is interesting to note that flying underneath a High Power Line is not exempted from this prohibition. The Supreme Court gave this ruling on 19 March 1991. It confirmed the decisions of the Magistrate and the District Court whereby defendant had been ordered to pay 55 guilders or 2 days confinement for infringing the Aviation Rules 1980 concerning low-flight cropspraying. [2]

Activities of Agriculture Aviation

Reverting now to the post-World War II period, we note that in 1962 the Food and Agricultural Legislation of Costa Rica[3] described the activities involving agricultural aviation as follows:

(a) Land preparation through the use of fertilizers and soil amendments
(b) Seeding
(c) Agricultural pest control
(d) The application of defoliants, fertilizers hormones, insecticides and herbicides
(e) Artificial rain-making
(f) Any other use of aircraft for agricultural purposes which may be approved at a later date

McBreen[4] asserts that the increased use of aircraft in agriculture was caused primarily by the large number of trained pilots and surplus aircraft being available after World War II. Another important factor was the production of modern, more effective pesticides.

Important elements in spraying are:
1. The chemical nature of the pesticide
2. The method of application
3. Wind direction
4. Stability in the air
5. Temperature and humidity
6. The experience of the pilot

Interesting is the case of Loe v. Lenhardt, in which the court ruled that the use of pesticides was an 'ultrahazardous activity'. In the US cropdusting is regulated in many states by statutes requiring users applying pesticides to be licensed.[5]

Damage Caused by Spraying

It is easy to understand that the spraying of land in the wrong way can cause severe damage. Shawcross[6] comments: 'A group of cases of particular interest in that it illustrates the application of a number of different rules of liability to cases presenting very similar facts are the crop-spraying (or 'crop-dusting') cases. These arise from the use of light aircraft to spray or spread chemical weed-killers or other agricultural products, and the damage sustained by

2. Public Prosecutor v. X, Supreme Court of the Netherlands (Hoge Raad der Nederlanden), 19 March 1991, Rollnumber 88.160 (not published).
3. The Food and Agricultural Legislation of Costa Rica of 1962, Executive Decree No.1 promulgating Part VIII, Agricultural Aviation Regulations of the Costa Rican Air Regulations (Decreto No.1 por el que se aprueba el Reglamento de Aviacion Agricola como Parte VIII de las Regulaciones Aereas para Costa Rica), 5 January 1962, La Gaceta No.6, 9 January 1962, p.49.
4. See note 1, supra.
5. Loe v. Lenhardt, 227 Or.242, 362 P.2d 312 (1961).
6. Shawcross and Beaumont, *Air Law*, loose-leaf with supplements, 4th ed. (1977): see section 'English Law', p.V/131 (Supplement 70).

neighbouring landowners when the chemical is dropped, or blown on to their land and crops.'

Negligence

A majority of the states nationwide have held that the liability of an aerial application must be based on a finding of negligence[7] Prosser[8] defines negligence as conduct which involves an unreasonable risk of causing damage.

In the case Parks et al. v. Atwood Crop Dusters, Inc. et al[9] the court decided that a company which is engaged in crop dusting by aircraft is liable for damages to a crop in fields adjacent to the field being dusted where negligence is the proximate cause of the damage.

No person is permitted by law to use his property in such manner that damage to his neighbour is a foreseeable result, and the duster had been warned not to allow a defoliant to get on the adjacent fields.

United States courts have held the operator of the aircraft liable in such cases on the basis of trespass, negligence, and on a theory of strict liability akin to that in Rylands v. Fletcher.[10] In addition, in cases where the landowner who used a crop-spraying service has been joined as defendant, he has been held liable despite the usual rule barring liability for the acts of independent contractors, either by declaring the activity to be an ultrahazardous one, or by viewing the landowner as under a non-delegable duty.

Damage to Animals

Damage can be caused not only to crops but also to animals.

A Canadian ruling concerned the following case:

A beekeeper suffered damages because the cropdusting of a cornfield had been carried out in such a way that his bees, on an adjacent field, were killed. The defendant was accused of spraying unlawfully, without taking the necessary precautions, and with carelessness and gross negligence. The spraying had been carried out by an inexperienced employee. Compensation was granted by the Court.[11]

Another case about damage causing the death of bees is Lenk v. Spezia et al.[12] The appellant, a bee-keeper, brought action to recover damages for the death of his bees allegedly caused by the appellees' negligent aerial dusting of crops with insecticide in adjacent fields. The Court held that there was ample evidence to support the findings that the appellant is barred from recovery because of contributory negligence.

The defendants denied that they had deposited or negligently permitted poisonous insecticide to be carried to or spread upon plaintiff's bees or feeding grounds, and affirmatively alleged that plaintiff's loss of bees and honey was due to his own contributory negligence in failing and refusing to remove the hives or to protect the bees from the poisonous dust in spite of the fact that he had previous knowledge of the defendant's intention to use that powder to dust the tomato crops in the vicinity of his hives.

Another case of death of bees was mentioned in Jeanes v. Holtz et al.[13] The appellant, a bee-keeper, brought action to recover damages for the death of his bees allegedly caused by negligent and careless aerial crop-dusting by the appellees in near-by fields. The Court affirms a judgment for the appellees upon finding that no sufficient basis existed upon which to predicate liability on the part of the appellees.

In the Law of the United States it has been stated that Section 596 of the Penal Code provides that 'Every person who ...wilfully administers poison to any animal, the property of another, or exposes any poisonous substance, with the intent that the same shall be taken or

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7. T.W.Conklin, J.W.Adler, S.W.Hoyne, 'Indemnity and contribution in the litigation of aerial application claims: looking for a deeper pocket', 45 JALC 1980, p.375-391.
8. W.Prosser, Handbook of the Law of Torts, 4th edition, 1971, p.145
9. Parks *et al.* v. Atwood Crop Dusters, California District Court of Appeals, 5 June 1953, Avi, vol.3, p.18,239.
10. Rylands v. Fletcher, LR 3 H.L. Cas.330 (1886).
11. Haineault v. Paul-Emile Toupinet Beaver Airspray, Cour Supérieure de la Province de Québec, District d'Ibreville, 11 May 1988; see also L.S.Kreinder, Aviation Accident Law, 1993, who gives in para.6.02 an extensive list of crop dusting accident litigation.
12. Lenk v. Spezia *et al.*, California Court of Appeal, Third District, 22 December 1949, Avi, vol.3, p.17.106. 3: 17-106.
13. Jeanes v. Holtz *et al.*, California Court of Appeal, Fourth District, 28 November 1949, Avi, vol.3, p. 17.104.

swallowed by any such animal, is guilty of a misdemeanor.' It is clear that this section has no application to the unintentional poisoning of bees on one's own premises. Bees are not classified as predatory animals under section 1230 of the Fish and Game Code in the US.

The court of appeal affirmed the judgment for the appellants upon finding that no sufficient basis existed upon which to predicate liability on the part of the appellants.

In the Holt case[14] defendant sprayed his crop of maize with a compound containing poison to protect the growing grain from grasshoppers which were prevalent and harmful to his crop. Plaintiff's cattle trespassed on that land and evidently procured some of the poisonous mixture, as a result of which several cows died. Plaintiff brought suit for damages and recovered judgment. On appeal the judgment was reversed.

The court held that because the cattle were trespassing on the land at the time they procured the poisonous mixture from which they died, the plaintiff was precluded from recovering damages.

A case about damage caused to fishes is the following. During crop dusting minnows were destructed in an adjacent pond. The Court decided that the corporation which performed the spraying was negligent and must be held liable for the damage.[15]

But also ordinary but low flying aircraft may cause damage, because noise can terrify cattle in such a way that they wound themselves in trying to escape.

Well-known are the cases of turkey farms and minks at fur farms. In a few instances minks at fur farms became so terrified by overflying aircraft that they killed their young or gave birth prematurely.

Yet, no compensation was due, according to the Rome Convention of 1952 on Damage Caused by Foreign Aircraft to Third Parties on the Surface[16]. Also touristic balloons, which are coming more and more in the picture, can cause damage at the surface.

Rules for Compensation, The Rome Convention of 1952

What are the rules for compensation if damage caused by such activities occur? Now that international relations have become more integrated, involving also agricultural aviation activities between countries, the Convention of Rome of 1952 (with added Protocol of 1978) on damage caused to third parties on the surface could apply on international activities when the parties have adhered to the Convention. The Convention is in force, but it did not attract many ratifications. The reason for this lack of interest can be described as follows:

1. The limits for compensation mentioned in the Convention were considered too low;
2. National legislation provided adequate safeguards for the interests of third parties on the surface: it was felt that there was no need for international rules on the subject;
3. The Convention did not deal with problems such as noise, sonic boom or nuclear damage;
4. There were objections against creating only one forum.[17]

In this Convention the fundamental legal principle is that anyone who creates a dangerous condition, through the use of an instrument or machine, becomes responsible to any person who is thereby injured and bears the liability to compensate for the injury thus inflicted. The Convention is not applicable to aircraft of the own state. One finds the above-mentioned principle in most national laws.

Applicability of National Laws

However, in a great number of cases, the spraying is done by aircraft of the same nationality as that of the land-owner, so that mostly national laws will apply. Most countries have indeed regulations on this point, either by common civil law, or by special regulations.

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14. Holt v. Mundell, 107 Colo., 373, 112 P.(2d), 1039, 1043.
15. Kentucky Aerospray v. Mays, Kentucky Court of Appeals, 26 September 1952, Avi 3, p.18,024. 3: 18-24.
16. Nova Mink v. Trans-Canada Airlines, Supreme Court, Nova Scotia (Canada), 5 January 1951, USAvR 1951, p.40 and Zfl 1952, p.381.
17. G.Rinck, 'Schäden Dritter im Internationalen Luftverkehr: über den bisherigen Misserfolg des Römer Haftpflichtabkommens', ZLW, 1962, pp.85-104; and by the same author, 'Damage caused by foreign aircraft to third parties', JALC 1961/1962, p.405-417.

In general the liability for damage caused to the farmer will depend first of all upon the terms of his contract with the agricultural contractor. It often happens that spraying effects other areas or places than those that had been agreed upon, either by pilot error or changes in the wind-direction. There are several rulings relating to such cases. The first decision concerned the question of crop-dusting liability is the case of Gerard v. Fricker[18]. Both the airplane owner and the farmer employing the pilot were held liable for damages to the adjoining landowner caused by the drifting of the poisonous dust. The Court spoke of 'inherently dangerous' nature of the work, and said 'this is especially true where the agency or means employed to do the work, if not confined and carefully guarded, is liable to invade adjacent property, or the property of others, and destroy or damage it'.[19]

In another case, Miles v. Areno Co.[20] the Court did not speak of crop-dusting as being 'inherently dangerous'.

From the words used by the Court it can be inferred that the Court was not holding either the farmer or the pilot to the same high degree of care that was felt necessary in the above-mentioned Fricker case.

Two factors can have an influence on decisions regarding the degree of liability, namely:

a) If a precautionary warning has been given of the 'dusting' operation of the neighbouring land;
b) The courts expect that the promoter of a 'dusting' operation has a special knowledge of the spray that he is using and of the best spraying methods.

In a Dutch case[21] a penalty had been ordered for insufficient care in spraying by helicopter. The magistrate accepted that the defendant had not acted with such care that there was no risk for human consumption. He had insufficiently taken into account the force and direction of the wind. According to a report of the Royal Netherlands Meteorological Office the windforce at the time of spraying was more than 5 meters per second.

The Netherlands Horticultural Service and other agencies combating horticultural pests and weeds have warned that under no circumstances spraying may take place with a windforce of 5 meters per second, and that the spray should never be allowed to affect other agricultural produce.

This applies in particular to produce for human consumption, like garden vegetables. It unfortunately still occurs fairly often that, either through pilot's error or changes in the wind-direction the spray lands on places or areas other than those that had been agreed.

Another case of drifting insecticide was discussed in Burns v. Vaughan[22]. Appellant caused his rice crop to be sprayed by airplane with an insecticide. Some of the insecticide drifted to the appellee's land and damaged a cotton crop there. The Court holds that the evidence was sufficient to make the issue of negligence a matter for the jury and affirms the judgment in favour of the appellee.

Another case of damage by aerial cropdusting was the case Kennedy v. Clayton[23]. In this case also discussion came up about drifting

18. Gerard v. Fricker, 42 Ariz. 503, 27 P (2d) 678 (1933).
19. A similar case is Hammond Ranch Corp. and Homer Ricks v. Dodson and Williams; 199 Ark. 846, 136 S.W. (2d) 484 (1940).
20. Miles v. Areno Co., 23 Cal. App. (2d) 680, 73 P. (2d) 1260 (1937).
21. Public Prosecutor v. X, Court of 's-Hertogenbosch (The Netherlands), 25 July 1983 ; see F.A. van Bakelen and I.H.Ph.Diederiks-Verschoor, Compendium Jurisprudentie Luchtrecht, 1988, p.165.
22. Burns v. Vaughan, Arkansas Supreme Court, 21 November 1949, Avi, vol. 3, p.17,103. See for further cases about damage to adjoining property caused by drifting insecticide: Pruett v. Burr *et al.*, Sherwin-Williams Co., appellant, California District Court of Appeals, 27 May 1953, Avi vol.3, p.18,230; Pendergrass v. Lovelace, New Mexico Supreme Court, 9 October 1953, Avi vol.4, p.17, 375; Julian Gotreaux v. Roy Gary *et al.*, Louisiana Supreme Court, 25 February 1957, Avi vol.5, p.17,269; Vrazel v Bieri *et al.*, Texas Court of Civil Appeals, 20 September 1956, Avi vol.5, p.17,310; E.J.Burke v. Wilson Thomas, Oklahoma Supreme Court, 25 June 1957, Avi vol.5, p.17,497; Prince Jones v. James Stewart Morgan et al., Louisiana Court of Appeal, 28 June 1957, Avi vol.5, p.17,548; Aerial Sprayers Inc. v. Yerger, Hill & Sons *et al.*, Texas Court of Civil Appeals, 16 October 1957, Avi vol.5, p.17,608.

insecticide and also the question of the aviator's status as servant or independent contractor.

The defendants, owners of a rice crop, hired an aviator to spray their fields with 2, 4-D. Some of the chemical drifted to nearby cotton fields and damaged the cotton crop owned by the plaintiffs. A duty rested upon the defendants to exercise the degree of care commensurate with the danger they actually knew of, or the danger factor that they would have found if, as reasonable men, they had made inquiry. If they did not actually know of the probability that 2, 4-D would drift, the knowledge that they did have of its dangerous characteristics should have put them on notice, resulting in an investigation along precautionary lines. Further, the trial court's failure to permit the jury to say whether the aviator was a servant of the defendants or an independent contractor made no difference; the 2, 4-D was inherently dangerous to cotton crops, and the defendant's liability could not be shifted.

Videla Escalada gives the following example. The owner of the plantation in Argentina claimed damages to the amount of $ 900,000, basing his claim on the rules of the Civil Code, which governs liability for unlawful acts. The defendant opposed that in the present case the Court was not the competent instance, and based his argument on the Aviation Code concerning damage caused to third parties on the surface, which limits the liability to the amount of $ 150,000, according to the weight of the aircraft. The Court declared itself competent and ordered the defendant, according to the rules of the Civil Code, to pay an amount of $ 1,000,000, a sum which was higher than the one required and which took account of an eventual devaluation. A higher instance affirmed the decision, but reduced the amount to $ 400,000, which was less than half the sum required, but more than twice the maximum amount provided in the Aviation Code, which the defendant appealed to.[24]

Period of Liability

An important problem of liability in agricultural aviation is the following. When the spray touches the plants of a neighbouring land, the spray may cause damage, but it is possible that this damage does not become apparent immediately, but only after some time: it is the chemical action of the spray that causes the damage, and the chemical action of one spray may show later than the chemical action of another. Therefore it is necessary to know when the operator will cease to be liable. A clear distinction between the liabilities of the operator and the landowner would be most desirable. Perhaps a standard contract between landowners and agricultural operators would be the answer to the problem.

Which Person will be Responsible?

Although national laws prescribe minimum altitudes for balloonflights, cases of damage being caused by them do still occur occasionally. There has been an interesting case centering round the question of liability[25]: in 1988 there was a landowner alleging that his horse and a herd of cows had panicked and bolted, because of a balloon landing and taking off nearby. This resulted in the animals injuring themselves and damaging silage. The claimant alleged that the damage was caused by the fault and unlawful action of the trainee-balloonist, presenting the following argumentation: 'When one undertakes a balloonflight, which is widely known as a risky means of transport, one is obliged to take into account the risks involved and to pay compensation for the damages occurring in case of "mishaps".

The Court found that the trainee was not liable because the liability was, in principle, the captain's. Abandoning this principle would be justified only if the trainee had acted against the captain's instructions, or if he, acting in accordance with the instructions, could reasonably be expected to understand that

23. Kennedy v. Clayton, Arkansas Supreme Court, 13 March 1950, Avi, vol.3, p. 17,152. Another case on problems caused by crop dusting with 2,4-D is Yasukochi Inc. v. McKibbin *et al.*, California District Court of Appeal, 25 June 1957, Avi vol.5, p.17,598.

24. F.Videla Escalada, 'Les dommages causés à la surface par un avion épandant un produit herbicide sont-ils soumis aux régles du droit aérien?', RGA, vol.27 (1964), p.231-235.

25. J.N. and J.N.M.van Zijl v. S.Lemstra, Court of Middelburg (The Netherlands), Rollnumber 689/1987 (unpublished).

obeying the instructions could jeopardize safety. The landowner's claim was rejected.

Another question which arises is whether the landowner whose land is being sprayed and who had hired an independent contractor is liable. The contractor may be an independent firm. In practice there are three possibilities:

1. Some Courts require that some measure of control by the landowner is established before imposing liability,
2. A second category of Courts take the view that the nature of the activity is inherently dangerous, so the landowner does not have the obligation of control and
3. A third category of Courts imposes liability on the landowner based on ownership liability statutes.

In cases of damages caused by spraying or by noise the Courts' decisions will mostly be based on national laws regulating the use of insecticides and pesticides, the liability and the flight altitude.

Finally the manufacturer of the pesticide may be found responsible.

An interesting case is Walton et al. v. Sherwin-Williams C. et al.,[26] which centered on damage to crops in nearby areas by crop spraying by aircraft.

The case was as follows: An action brought by a group of farmers against the manufacturer of a weed-killing chemical which had damaged crops near a spraying area was dismissed. The Court found that the manufacturer had taken adequate precautions in the testing and labeling of the chemical and that the chemical was not inherently dangerous if ordinary care was taken by farmers and pilots in choosing the fields to be sprayed, in choosing the time for spraying, and in operating the plane.

Insurance

Damage caused by noise or by spraying has generally been excluded from insurance. A Policy of the Dutch Aviation Pool has been added as an Annex to this text.

CONCLUSION

There is a fast growing tendency to respect and save the environment, and it is to be expected that more and more attention will be focused on this problem in the near future. Technical improvements and enforcement of the prescribed rules in national laws will be required to achieve any results.

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26. Walton *et al.* v. Sherwin-Williams Co. *et al.*, US Court of Appeals, Eighth Circuit, 15 August 1951, Avi, vol.3, p.17,685. Another case centring on negligence of the manufacturer is Reasor-Hill Corp. v. Harrison, Arkansas Supreme Court, 21 January 1952, Avi vol.3, p.17,820.

Annex

Insurancecompany
De Nederlandse Luchtvaartpool N.V

Noise and Pollution and Other Perils Exclusion Clause

1. This Policy does not cover claims directly or indirectly occasioned by, happening through or in consequence of:
   (a) noise (whether audible to the human ear or not), vibrations sonic boom and any phenomena associated there withs
   (b) pollution and contamination of any kind whatsoevers
   (c) electrical and electromagnetic interference,
   (d) interference with the use of property;

   unless caused by or resulting in a crash fire explosion or collision or a recorded in-flight emergency causing abnormal aircraft operation.

2. With respect to any provision in the Policy concerning any duty of Underwriters to investigate or defend claims, such provision shall not apply and Underwriters shall not be required to defend
   (a) claims excluded by Paragraph 1 or
   (b) a claim or claims covered by the Policy when combined with any claims excluded by Paragraph 1 (referred to below as 'Combined Claims').

3. In respect of any Combined Claims. Underwriters shall (subject to proof of loss and the limits of the Policy) reimburse the Insured for that portion of the following items which may be allocated to the claim or claims covered by the Policy:
   (i) damages awarded against the insured and
   (ii) defence fees and expenses incurred by the insured

4. Nothing herein shall override any radioactive contamination or other exclusion clause attached to or forming part of this Policy.

Subject Index for Volume 6 Nos. 1 and 2, 1998

Author Index for Volume 6 Nos. 1 and 2, 1998

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Typing and Paper
The manuscript should be typed double spaced on A4 paper with 4cm margins on all sides. it should be limited to 25 pages including tables, illustrations and references.

Title page
The title of the paper, name of author and full address of the institution where the work was carried out should appear on this page. A short title not exceeding 60 characters should be provided for the running headlines.

Abstract
English and Bahasa Melayu abstracts of 200 words each should follow the title page. Papers from outside Malaysia may be submitted with an English abstract only.

Keywords
About six to ten keywords are required and these should be placed directly above the abstract.

Tables
Tables should be typed on separate pages and numbered using Arabic numerals. Each table should be referred to in the text, has a brief title and include explanatory notes, if necessary, below it. Vertical rules should not be used. Footnotes in tables should be designated by symbols or superscript small italic letters. Tables should conform to page size.

Equations
These must be clearly typed, triple-spaced. They should be identified by numbers in square brackets placed flush with the right margin.

Illustrations & Photographs
Illustrations including diagrams and graphs are to be referred to in the text as 'figures' and photographs as 'plates' and numbered consecutively in Arabic numerals. All photographs (glossy black and white prints) should be supplied with appropriate scales.

Illustrations should be of print quality; output from dotmatrix printers is not acceptable, Illustrations should be on separate sheets, about twice the size in print. All letters, numbers and legends must be included on the illustration with the author's name, short title of the paper, and figure number written on the verso. A list of captions should be provided on a separate sheet.

Spelling & Measurements
The Oxford English Dictionary should be consulted for spelling. Metric units must be used for empirical measurements.

Citations and References
Citations to the literature in the text should to be indicated by the author's name and year of publication in parentheses, e.g. (Barnett and Lewis 1982). If an author is quoted in the text, the year of publication should immediately follow in parentheses. e.g. Barnett and Lewis (1982) state that "....." Citation of a particular page follows the date and is preceded by a comma, e.g. Humphrey 1990, p. 26-27.

For works with multiple authors, the first author's surname is used followed by *et al.* The full form of citation is used for two authors.

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Serials are to be abbreviated as in the *World List of Scientific Periodicals.* The abbreviation for Pertanika Journal of Social Science and Humanities is *Pertanika J. Soc. Sci. Hum.*

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Book
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Chapter in Edited Book
Zahid Emby. 1990. The Orang Asli Regrouping Scheme-converting swiddeners to commerical farmers. In *Margins and Minorities - The Peripheral Areas and Peoples of Malaysia,* ed. V. T King & M.J.G. Parnwell, p. 94-109. Hull: Hull University Press.

Unpublished Materials (e.g. theses, reports, documents)
Shahwahid, H.O. 1989. Price competitiveness and demand behaviour of Malaysia Meranti lumber and hardwood plywood in the United States' import market. Ph.D. Dissertation, State University of New York. Syracuse.

Ministry of National Unity. 1973. A socio-economic survey on the new villages in Perak and Melaka. 67p. Malaysia.

Serials
Noran Fauziah Yaakub. 1990. A multivariate analysis of attitude towards teaching. *Pertanika* **13(2)**: 267-273.

Conference Proceedings
Amir Awang. 1992. Counselling, human resorces development and counseling services. In *Proceeding of Asia Pacific Conference on Human Resource Development,* ed. Sulaiman M. Yassin, Yahya Mat Hassan Kamariah Abu Bakar, Esah Munji anda Sabariah Mohd Rashid, p. 243-246. Serdang: Universiti Pertanian Malaysia.

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