

Leadership Development Programmes Perceived as Important by Malaysian Primary Deputy Principals: Do Demographic Factors Matter?

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<https://doi.org/10.24191/ajue.v19i2.22298>

Received: 15 February 2023

Accepted: 1 April 2023

Date Published Online: 30 April 2023

Published: 30 April 2023

Abstract: The main purpose of this study was to examine a less explored and under-studied topic of professional development programmes deputy principals in Malaysian primary schools' view as important. A survey was conducted using a self-developed questionnaire consisting of 18 items. The was distributed to deputy principals from all primary schools in the state of Johor and garnered a total of 318 responses. Descriptive and inferential statistical analyses were employed to obtain the means scores, whilst the *t*-test and *one-way* ANOVA were employed to measure the differences between deputy principals based on their demographic factors. The results revealed a number of professional development programmes deputy principals considered as beneficial to their leadership journey. Programmes such as financial management, school law, managing teachers' competencies and teamworking were perceived as noteworthy and valuable and were believed to be capable of supporting deputy principals' school management and leadership knowledge and skills. A significant difference between the deputy principals' positions and their selection of professional development programmes was identified, while other demographic factors such as gender and years spent as a school leader were less significant.

Keywords: insisted programmes, deputy principals, professional development, primary schools.

1. Introduction

Besides school principals, deputy principals are considered as the second most influential individuals within the bureaucratic structure and capable of influencing the school's achievement (Thabethe, 2020; Chitamba, 2019). As a school deputy, they are invested with multiple roles and functions that ensure the smooth daily operation of the school (Baskett, 2020), deputising for principals at any official meetings, managing the school's finances (Bulawa & Mhlauli, 2018; Balıkcı, 2021) and resolving the school's disciplinary issues (Goldring, Rubin, & Herrmann, 2021; Mattocks, 2016; Thabethe, 2020). Nevertheless, previous studies pointed out that deputies' major accountability involved managing and ensuring the effective implementation of the school's instructional programmes

and curricular leadership (Abrahamsen, 2018; Chitamba, 2019; Swain, 2016; Lee *et al.*, 2009; Petrides, Jimes, & Karaglani, 2014). This shows a deputy principal to be a significant middle-layer school leader who would later occupy a vacant principalship position as a stepping stone to becoming a future school principal (Goldring, Rubin & Herrmann, 2021; Boone, 2020; Barnett, Shoho & Okilwa, 2017).

In this sense, Devi and Fernandes (2019) postulated that a school's achievements are influenced by school leaders' knowledge, strategic thoughts and skills in leading their schools. Thus, they argued that school leaders need to be constantly prepared and supported with continuous and effective professional development programmes to achieve effective leadership (Fred & Bishen Singh, 2021; Tai & Kareem, 2018). These formal or informal support programmes should be strongly related to their job-embedded experience and adopt a professional-based learning approach (Nasreen & Odhiambo, 2018). Conceptually, these programmes should acknowledge the significant importance of professional development for all school leaders in order to boost their knowledge, skills and leadership effectiveness (Petridou, Nocolaidou, & Karagiorgi, 2017) and enhance professional growth (Bush, 2018) in order to create changes that support positive values in schools (Rushing, 2022). If principals were left without such support programmes or initial training, their development, knowledge, and skills would be considered imperfect with consequent implications for declining school performance (Barnett *et al.*, 2017; Acton, 2021).

Despite the abundance of studies which underlined the significant importance of support programmes for deputy principals, their needs and requests remain unclear and under researched (Brockman, 2012). In adding to this gap, Rowland (2017) argued that school leaders were underprovided with, or received limited access to, support from continuous professional development programmes that enhance their professional growth. Indeed, there remains a lack of professional development or adequate training on offer (Chitamba, 2019; Thabethe, 2020; Goksoy, 2016; Khumalo *et al.*, 2017; Baskett, 2020). Thus, with the lowest level of support programmes on offer, deputy principals will remain unprepared to deal with many of the issues they encounter (Busch, MacNeil, & Baraniuk, 2012). Such a situation indicates the need for deputy principals to be effectively supported with meaningful and relevant professional development programmes to prepare them as future principals (Allen & Weaver, 2014; Baskett, 2020). In preparing them, deputies also requested specific programmes tailored to their needs and positions (Hausman *et al.*, 2002), and which also prepared them for a future role as an effective principal (Lillejord & Borte, 2020; Reyes-Guerra & Barnett, 2017). As such, Goldring, Rubin and Herrmann (2021) were critical that most programmes offered are not effectively and systematically available to deputies, especially those serving at schools in rural areas or smaller districts. In fact, it is contended that professional development programmes for deputy principals are considered as insufficient and a major stumbling block in preparing deputy principals to become effective school leaders (Goksoy, 2016; Khumalo *et al.*, 2017).

Despite the effort to improve the leadership quality of school leaders, until now, there has also been a paucity of studies that examine deputy principals' requests for leadership development programmes or support that they believe will enhance their knowledge and skills in the Malaysian context of principalship. In particular, studies on deputy principals are considered as under-researched or understudied areas in the existing literature on principalship (Thabethe, 2020; Kwan & Walker, 2012; Hodges, 2018). Thus, deputy principals' roles and responsibilities have received little attention compared to principals (Ismail, Khatibi & Azam, 2021; Spillane & Mertz, 2015). In fact, they argued that putting too much emphasis on principals is the major reason why deputy principals are labelled as "the forgotten school leaders" (Thabethe, 2020).

2. Professional development programmes for deputy principals

The professional development for school leaders has been defined as a comprehensive process of continuous support programmes offered to enhance their leadership performance and effectiveness (Tai and Kareem, 2020; McCracken, 2017). In explaining the context of school leaders, Geren (2016) postulated that the contents of these professional courses should focus on the intensive and continuous aspects of school leaders' professional routine practices (Gumus, 2019), making changes (Hilton *et al.*, 2015) and supporting teachers' capacities while using distributed leadership practices (Andreoli *et al.*, 2020).

In explaining these programmes, Kwan and Li (2016) emphasised that deputy principals in Hong Kong had preferences for external support programmes, such as mentoring, which they felt were beneficial in guiding and improving their knowledge and skills as a middle leader in schools. Through mentoring, deputies are exposed to collaborative initiatives with their own principals who can share sufficient knowledge and skills as preparation for their principalship position. In New Zealand schools, Shore and Walshaw (2018) affirmed that deputy principals requested programmes which related to managing conflict and handling poor team dynamics. Meanwhile, Barnett *et al.* (2012) have identified key performance areas to prepare deputy principals with the required professional development that is significant for their professional growth. Findings revealed that programmes such as time management, conflict resolution, organisational skills and instructional leadership capabilities were believed to provide valuable and significant support to deputy principals. In 2013, Ng and Chan conducted a study based on the professional needs of Hong Kong mid-range school leaders. The study suggested that middle leaders received insufficient training which resulted in strong demands for programmes such as interpersonal and communication skills, managing school resources, managing crises in schools and understanding school law/ordinances.

In addition, Goksoy's study (2016) highlighted a professional development programme which pointed out that managing human relations is a significant skill in helping deputy principals lead their schools. Earlier, Cranston *et al.* (2004) argued that that deputy principals need support programmes on the elements of financial management, leading schools, time management and performance measurement. In Zimbabwe, Thabethe (2020) affirmed that deputy principals received a low level of support in terms of their professional development. During the interviews, deputy principals argued that most of the courses organised were mostly generic in nature and not focusing on their needs. However, deputy principals credited their principals in providing them with on-the-job training, exposure and guidance. In the context of deputy principals as instructional leaders, Hardesty (2021) emphasised the more professional programmes related to instructional leadership in order to boost their roles as content-focused instructional leaders. Having wide knowledge and skills in instructional leadership provided deputy principals with easy access to support in guiding teachers and focusing on students' learning.

Earlier findings related to deputy principals' professional development needs by Barnett, Shoho and Oleszewski (2012) led to support programmes such as strategies to overcome teachers' heavy workload, managing conflicts with students and parents, and curriculum and instructional challenges. The major reasons for requiring these programmes were derived from deputy principals' unpreparedness for working with people, their lack of clarity about their curriculum expectations and their lack of the leadership and managerial skills to accomplish their school leadership tasks. In 2014, Allen and Weaver disclosed that deputy principals insisted on more professional development programmes related to school finance and school budgeting. Based on the findings, it was revealed that they lacked the knowledge to effectively manage and implement the school budget. In addition, deputy principals also shared that their principals provided little knowledge and mentoring on school budgeting and accounting responsibilities.

3. The conceptual framework

In Malaysia, the introduction of Malaysia's Educational Blueprint 2013 to 2015 had the significant objective of empowering school leaders and improving school performance to produce quality education. Thus, Malaysian school leaders, including deputy principals, needed to be empowered continuously through informal-based leadership and professional development programmes to expand their knowledge, attitudes and skills as future effective school leaders (Ministry of Education, Malaysia, 2018).

The conceptual foundation for this study employs the Knowles definition (1978) of andragogy learning which proposes that learning for an adult is typically based on an individual's perception of their needs, passions and interests to improve their own professional growth and advancement. As an autonomous learner, the individual will put much effort into improving their own knowledge and skills which will benefit their professional learning experience and personal context (Rushing, 2020). In the context of school leaders, they will choose or pursue the best suitable knowledge and skills that are meaningful and capable of improving their professional practice.

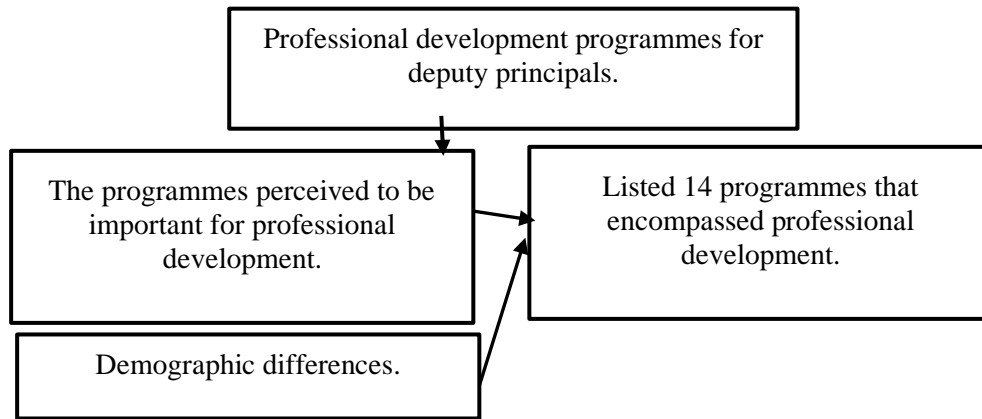


Fig. 1: Conceptual framework of this study.

As shown in Figure 1, this study proposes professional development programmes that deputy principals believe fruitful and beneficial to their roles as school leaders. To ensure that the professional development programmes match deputy principals' needs, 14 listed programmes were given to deputy principals who were asked to provide their responses on those which they hypothesised as being beneficial. After obtaining the programmes which were found meaningful, significant and beneficial, deputies' responses were later totalled to identify those which met deputy principals' preferences and those which were found to be least meaningful. Lastly, all 14 programmes were tested using differentiation tests to identify the significant differences related to deputy principals' demographic factors.

4. Methodology

4.1. Study design and sample

This study employs a survey of deputy principals in primary schools to investigate the study programmes that they think would be significantly beneficial for their leadership development. In this study, 318 randomly selected deputies were given questionnaires and asked to provide their responses on the items. All deputy principal respondents were chosen using the random cluster sampling method based on their appointments and names provided by the state department of education. The chosen deputy principal participants had served or been a school leader in either rural or urban primary schools.

4.2 The survey instrument

In this study, the major instrument was a questionnaire consisting of 18 self-developed items divided into two major sections. In section A, items entailed deputy principals' demographic elements such as: gender, years of experience as a deputy principal, their positions in schools and, lastly, an item on courses or programmes that they had attended. All items in this demographic section involve nominal scaling.

In section B, items were developed based on the deputy principals' preferred professional development programmes on school management and leadership. The 14 self-developed items were based on previous studies of leadership and professional development programmes requested by principals (Tahir *et al.* 2021; Ng and Chan, 2014). In terms of scaling, respondents were asked to use a five-point Likert scale from 1 – strongly disagree to 5 – strongly agree. All items were developed in the Malay language to enable easy understanding of the items. In answering the items, all deputy principals were requested to select the elements within the listed professional development programmes which they found relevant and beneficial to their professional leadership experiences. In giving responses, deputies should select 'strongly agree' if they believe that the aspect or element is important

or beneficial to them in leading their schools. On the contrary, deputies should select 'strongly disagree' if they think an element is least important to them in leading and managing their schools.

Pilot study, reliability and validity values: to ensure the items were consistent and of high reliability, content validity was assessed based on the comments received from educational leadership experts from the Institute Aminudin Baki, Ministry of Education, Malaysia; two retired primary deputy principals, and two primary principals. All experts were asked to provide their comments and confirm the content validity.

The pilot study was conducted after modifications and corrections based on comments provided by the experts to secure content validity had been made. To implement the pilot study, 20 primary deputy principals who had been excluded from the actual study sample were selected. In the pilot study, reliability analysis indicated values of 0.966. Using the Cronbach's Alpha test, reliability values for the items ranged from 0.964 to 0.971, which comfortably exceeded the 0.70 value suggested by Hair *et al.* (2010).

4.3 Data collection procedure and analysis

After obtaining the official permissions from Malaysia's Ministry of Education (MOE), all questionnaires were distributed to selected deputy principals by visiting the selected schools where they served as school leaders. All deputies were given one week to give their responses to all items. Before analysing the quantitative data, all the returned questionnaires were checked and inspected.

In analysing the quantitative data, two major statistical tests were employed: descriptive and inferential statistics. The descriptive statistics employed were frequencies, mean scores and standard deviations to indicate responses to the demographic sections and to the items related to leadership development programmes and courses. The inferential statistics for this study encompassed the difference tests such as the *t*-tests and *one-way* analysis of variance (ANOVA) which measures the linkages of deputies' demographics with the programmes they chose. The inferential statistics were employed to measure the statistically significant differences based on deputies' gender, years of experience as deputies and their positions (Sun & Shoho, 2017).

5. Findings

5.1. Deputies' demographics

In obtaining deputies' responses to the developed items, a total of three hundred and eighteen (318) deputy principals from primary schools were asked to complete the survey. Initially, the study obtained 400 responses from primary deputies. However, upon careful inspection of the completed questionnaires, only 318 responses were taken as the final data for the data analysis phase. Of these 318 deputies, 126 (39.6%) were male and 192 female (60.4%). In terms of their experience as deputies, a large number (259=81.4%) had held their appointment as a deputy principal for more than 3 years. Another 33 deputies (10.4%) had been appointed within two years and only 26 deputies (8.2%) had been in post for at least a year. Out of this sample, a total of 140 deputies (44%) held the most senior position as deputy principal (administration) in schools followed by another 116 (36.5%) as deputy principal (student affairs) and another 54 (17.8 %) as deputy principal (extra-curricular). Finally, 8 (2.5%) were recorded as deputy principal for evening sessions.

Table 1. Deputies' demographics.

Variables	Frequency	Percentage
<i>Gender</i>		
Male	126	39.6
Female	192	60.4
<i>Years as a deputy principal</i>		
1 year	26	8.2
2 years	33	10.4
More than 3 years	259	81.4
<i>Deputies' positions</i>		
DP (administration)	140	44.0
DP (student affairs)	116	36.5
DP (extra-curricular)	54	17.0
DP (evening sessions)	8	2.5
<i>Courses on leadership development</i>		
Yes, I have attended	136	42.8
No, I have not attended	182	57.2

Deputy principals were initially asked about their leadership development programmes including courses and workshops provided by their state departments of education and district education offices. A total of 136 deputies (42.8 %) mentioned that they had attended courses and workshops related to their professional and leadership development to become deputy principals. In contrast, a total of 182 (57.2 %) deputies mentioned that they had not obtained any exposure to leadership development courses or workshops.

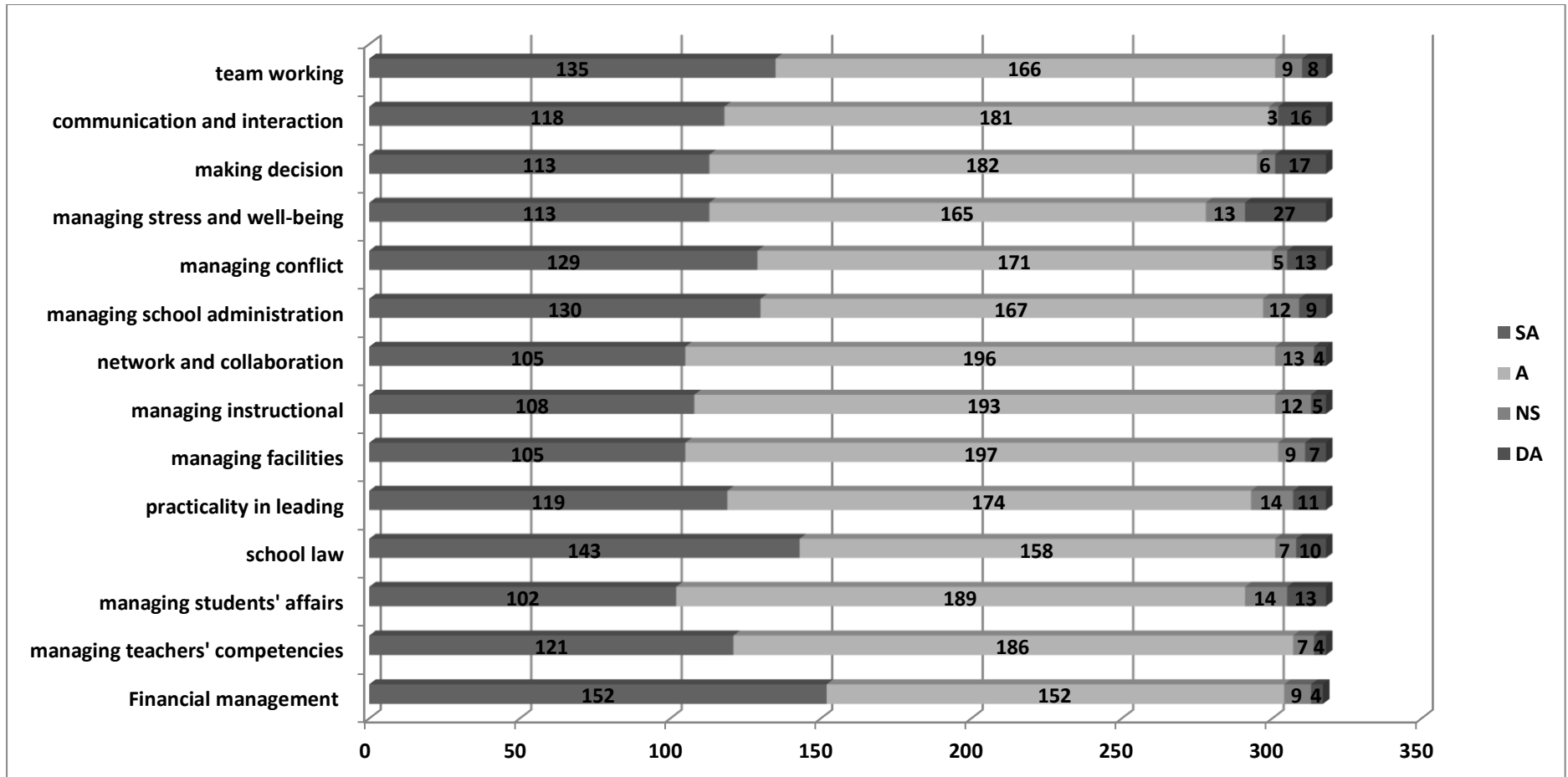
5.2 Professional development programmes requested by deputies.

In answering the first research question related to professional development programmes requested by deputy principals, all 318 deputy principals were asked to respond to all 14 items which related to their professional development programmes that they thought relevant and beneficial to support their knowledge and skill. This feedback is presented in Table 2 and Figure 1 below.

Based on the deputy principals' feedback, financial management ($M = 4.43$; $SD = 0.61$) was chosen and ranked as the most preferred programme requested compared to the other 14 requested programmes. The programme ranked second was concerned with school law ($M = 4.36$; $SD = 0.68$). The other remaining findings on the requested professional development programmes are managing teachers' competencies and growth ($M = 4.33$; $SD = 0.58$), team working ($M = 4.35$; $SD = 0.66$), managing the school administration ($M = 4.31$; $SD = 0.68$), managing conflict ($M = 4.31$; $SD = 0.70$), managing instruction ($M = 4.27$; $SD = 0.60$), practicality in leading ($M = 0.71$), managing facilities ($M = 4.26$; $SD = 0.68$); networking and collaboration ($M = 4.26$; $SD = 0.59$), effective communication ($M = 4.26$; $SD = 0.71$) and making effective decisions ($M = 4.23$; $SD = 0.74$). The lowest ranked support programme was managing stress and well-being ($M = 4.14$; $SD = 0.85$). Based on these responses, it is concluded that deputy principals in primary schools preferred professional development programmes which are related to financial management, school law, teamworking and managing teachers' competencies. The least-favoured support programme was related to managing stress and well-being.

Table 2. Descriptive statistics for programmes requested.

Requested leadership courses and programmes	Strongly agree	Agree	Not sure	Disagree	Mean	SD
Financial management	152	152	9	4	4.43	0.61
Managing teachers' competencies	121	186	7	4	4.33	0.58
Managing students	102	189	14	13	4.19	0.70
School law	143	158	7	10	4.36	0.68
Practicality in leading	119	174	14	11	4.26	0.71
Managing facilities	105	197	9	7	4.26	0.68
Managing instruction	108	193	12	5	4.27	0.60
Networking and collaboration	105	196	13	4	4.26	0.59
Managing the school administration	130	167	12	9	4.31	0.68
Managing conflict	129	171	5	13	4.31	0.70
Managing stress and well-being	113	165	13	27	4.14	0.85
Making effective decisions	113	186	6	17	4.23	0.74
Effective communication and interaction	118	181	3	16	4.26	0.71
Teamworking	135	166	9	8	4.35	0.66



Note: SA = strongly agree, A = Agree; NS = Not Sure; DA = Disagree.

Fig. 1 Primary deputy principals' perceptions of the programmes they requested.

5.3 Demographic differences of deputy principals

In examining the significant differences based on deputy principals' requested professional development programmes, two major tests were employed: the *t*-test and ANOVA. The *t*-test was employed to measure the significant difference of deputy principals' gender. In analysing deputy principals' years of leadership and deputy principals' positions, the one-way ANOVA test was used to measure the significant differences.

Deputy principals' gender

Table 3. *T*-test independent samples results based on deputies' gender.

Requested professional development programmes	Male Mean (SD)	Female Mean (SD)	<i>F</i>	Sig
Financial management	4.43 (0.58)	4.42 (0.63)	.676	.412
Managing teachers' competencies	4.38 (0.51)	4.30 (0.62)	.558	.456
Managing students' affairs	4.23 (0.68)	4.17(0.71)	0.92	.762
School law	4.35 (0.61)	4.38(0.72)	2.856	.092
Practicality in leading	4.22 (0.68)	4.29 (0.71)	1.194	.275
Managing facilities	4.29 (0.57)	4.24(0.64)	.007	.934
Managing instruction	4.28 (0.58)	4.27(0.62)	.011	.915
Networking and collaboration	4.27(0.59)	4.26(0.59)	.001	.971
Managing school administration	4.31(0.62)	4.32(0.71)	2.903	.089
Managing conflict	4.26(0.63)	4.34 (0.74)	3.386	.067
Managing stress and well-being	4.17 (0.77)	4.13 (0.90)	2.767	.097
Making effective decisions	4.23 (0.76)	4.22(0.73)	.127	.722
Effective communication and interaction	4.25 (0.70)	4.27(0.73)	.447	.504
Teamworking	4.32(0.65)	4.36 (0.66)	.263	.609

Table 3 presents the significant difference tests based on deputy principals' gender using the independent *t*-test analyses. Based on the tests, there are non-significant differences in all 14 items related to deputy principals' professional development programmes. Nevertheless, a few programmes indicated some differences based on gender although they were non-statistically significant: school law [n=318 (*F* = 2.856; Sig = 0.92)], managing the school's administration [n=318 (*F* = 2.903; Sig = 0.89)], managing conflict [n=318 (*F* = 3.386; Sig = 0.67)] and managing stress and well-being [n=318 (*F* = 2.767; Sig = 0.97)]. Based on the findings, it is assumed that perceptions of male and female deputy principals on programmes which they found beneficial and meaningful based on their roles as a deputy principal are very similar.

Deputy principals' years since appointment

Table 4. One-way ANOVA results for years since appointment.

Requested professional development programmes	SS	df	MS	F	Sig
Financial management	1.719	2	.860	2.292	.103
	117.789	314	.375		
Managing teachers' competencies	1.002	2	.501	1.466	.232
	107.664	315	.342		
Managing students' affairs	.083	2	.042	.084	.919
	155.829	315	.495		
School law	1.222	2	.611	1.314	.270
	146.464	315	.465		
Practicality in leading	.182	2	.091	.184	.832
	155.155	315	.493		
Managing facilities	1.226	2	.613	1.614	.201
	119.629	315	.380		
Managing instruction	1.128	2	.564	1.537	.217
	115.614	315	.367		
Networking and collaboration	2.659	2	1.330	3.837	.023*
	109.152	315	.347		
Managing the school administration	1.497	2	.748	1.625	.199
	145.057	315	.460		
Managing conflict	.893	2	.447	.908	.404
	154.905	315	.492		
Managing stress and well-being	1.542	2	.771	1.051	.351
	231.090	315	.734		
Making effective decisions	2.891	2	1.446	2.635	.073
	172.807	315	.549		
Effective communication and interaction	.657	2	.328	.636	.530
	162.680	315	.516		
Teamworking	.357	2	.178	.408	.665
	137.593	315	.437		

Note: SS = Sum of square; df = degree of freedom; MS = Mean square; *The mean difference is significant at the 0.05 level.

In Table 4, the data illustrate the findings obtained from one-way ANOVA results based on deputy principals' years since appointment. Based on this analysis, data indicated that 14 listed professional development programmes have non-significant results. Nevertheless, the item on network and collaboration shows a significant difference based on deputy principals' years since appointment [n=318 ($F = 3.837$; $Sig = 0.23$)]. Analysis for *post hoc* multiple comparisons then took place.

Table 5: The *post hoc* multiple comparison based on years since appointment

Requested professional development programmes	(i) year	(j) year	Std Error	Sig
Network and collaboration	One year	2 years	.154	.050
		< 3 years	.121	.023*

*The mean difference is significant at the 0.05 level.

As shown in Table 5 above, the *post hoc* multiple comparison analysis indicated a significant difference based on deputy principals' years since appointment, which indicates a difference between deputy principals who had one year of experience and those with more than 3 years' experience (SE = 0.121; Sig = 0.23).

Deputy principals' positions

Here, deputy principals' perceptions of their professional development programmes are being analysed to see if there are statistically significant differences based on their positions. The one-way ANOVA findings are in Table 6 below.

Table 6: One-way ANOVA results based on deputy principals' positions.

Requested professional development programmes	SS	df	MS	F	Sig
Financial management	2.290	3	.763	2.039	.108
Managing teachers' competencies	117.217	313	.374	2.015	.112
	2.053	3	.684		
Managing student affairs	106.614	314	.340	9.900	.000*
	13.473	3	4.491		
School law	142.439	314	.454	3.664	.013*
	4.995	3	1.665		
Practicality in leading	142.691	314	.454	2.821	.039*
	4.077	3	1.359		
Managing facilities	151.260	314	.482	1.803	.147
	2.046	3	.682		
Managing instruction	118.809	314	.378	2.287	.079
	2.497	3	.832		
Networking and collaboration	114.246	314	.364	.653	.581
	.694	3	.231		
Managing the school administration	111.118	314	.354	1.909	.128
	2.625	3	.875		
Managing conflict	143.929	314	.458	.908	.404
	.893	2	.447		
Managing stress and well-being	154.766	314	.493	2.917	.034*
	6.307	3	2.102		
Making effective decisions	226.325	314	.721	1.203	.309
	1.997	3	.666		
	173.701	314	.553		

Requested professional development programmes	SS	df	MS	F	Sig
Effective communication and interaction	1.542	3	.514	.997	.394
	161.795	314	.515		
Teamworking	3.580	3	1.193	2.789	.041*
	134.370	314	.428		

Note: SS = Sum of square; df = degree of freedom; MS = Mean square; *The mean difference is significant at the 0.05 level.

Table 6 illustrates the one-way ANOVA findings concerning the 14 professional development programmes based on four main deputy principal positions. The positions are: deputy principal (administration), deputy principal (student affairs), deputy principal (extra-curricular) and deputy principal (evening sessions). Based on the one-way ANOVA analysis, nine professional development programmes did not present any significant difference based on feedback given by 318 deputy principals. However, five support programmes did demonstrate significant differences based on deputy principals' positions in schools. These are managing student affairs [$n=318(F = 4.491; Sig = .000)$], school law [$n=318(F = 3.664; Sig = .013)$], practicality in leading [$n=318(F = 2.821; Sig = .039)$], managing stress and well-being [$n=318(F = 2.917; Sig = .034)$] and teamworking [$n=318(F = 2.789; Sig = .041)$].

Table 7: The *post hoc* multiple comparison based on deputies' positions.

Requested PD programmes	(i) position	(j) position	Std Error	Sig
Student affairs	DP Student affairs	DP Administration	.085	.000*
		DP Extra-curricular	.111	.012*
		DP Evening	.246	.026*
School law	DP Student affairs	DP Administration	.085	.396
		DP Extra-curricular	.111	.029*
		DP Evening	.246	.260
Practicality in leading	DP extra-curricular	DP Administration	.111	.101
		DP Student affairs	.114	.028*
		DP Evening	.263	1.000
Managing stress and well-being	DP Evening	DP Administration	.309	.284
		DP Student affairs	.110	.048*
		DP Extra-curricular	.322	.648
Teamworking	DP Student affairs	DP Administration	.082	1.000
		DP Extra-curricular	.118	.038*
		DP Evening	.239	.434

*The mean difference is significant at the 0.05 level.

Table 4: Regression results for deputy principals’ professional development programmes

Variables/predictors	Gender			Years in leadership position			Positions		
	β	<i>t-value</i>	Sig	β	<i>t-value</i>	Sig	β	<i>t-value</i>	Sig
Financial management	.011	.130	.897	.113	1.409	.160	.036	.448	.654
Managing teachers’ competencies	.155	1.701	.090	.008	.092	.927	.116	1.310	.191
Managing student affairs	.045	.560	.576	.065	.824	.411	.196	2.493	.013*
School law	.046	.508	.612	.066	.747	.456	.084	.953	.341
Practicality in leading	.065	.829	.408	.020	.264	.792	.083	1.082	.280
Managing facilities	.123	1.336	.183	.007	.082	.935	.159	1.768	.078
Managing instruction	.037	.449	.654	.010	.121	.904	.153	1.919	.056
Networking and collaboration	.055	.621	.711	.265	3.206		.087	1.057	.292
						.001			
						*			
Managing the school administration	.033	.335	.738	.157	1.626	.105	.114	1.182	.238
Managing conflict	.134	1.437	.152	.006	.064	.949	.063	.691	.490
Managing stress and well-being	.040	.465	.643	.087	1.031	.303	.039	.463	.644
Making effective decisions	.082	.857	.392	.285	3.078		.096	1.035	.302
						.002			
						*			
Effective communication and interaction	.018	.157	.875	.014	.129	.897	.535	.593	.047
Team-working	.088	.920	.358	.059	.634	.526	.135	1.452	.148

In general, these analyses indicate that deputy principals in primary schools have provided different feedback based on which of the four major positions they hold in their schools. Thus, the programmes showing a significant difference were later tested by a *post hoc* multiple comparison analysis to determine the different perceptions of each group of deputy principals.

As shown in Table 7, the *post hoc* multiple comparison indicates a significant difference based on deputy principals’ position based on the five programmes. The five programmes are student affairs, school law, practicality in leading, managing stress and well-being and, lastly, teamworking. For the student affairs and personal information, the significance differences are based on the perceptions of deputy principals (student affairs) with [a] deputy principals (administration) (SE = .085; Sig = 000), [b] deputy principals (extra-curricular) (SE = .111; Sig = .012) and [c] deputy principals (evening) (SE = .246; Sig = 000). For the school law programme, the significant difference is between deputy principals student affairs with deputy principals extra-curricular (SE = .111; Sig = .029). As for the programme practicality in leading, the significant difference is between deputy principal student affairs and deputy principal extra-curricular (SE = .114; Sig = .028). For the third programme - managing stress and well-being - the significance difference is between deputy principal evening sessions and deputy principal student affairs (SE = .110; Sig = .048). The final programme is teamworking for which the significant difference is between deputy principal student affairs and deputy principal extra-curricular (SE = .118; Sig = 0.38).

5.4 Regression analysis

In analysing the linkage between all professional development programmes and their demographic factors, regression analyses were conducted. The results show that deputies’ gender has no linkages or predictive capacity for all the 14 professional development programmes. However, for years in a leadership position, two programmes were found to be significant: network and collaboration ($\beta = .265$;

$t = 3.202$; $\text{Sig} = .001$) and making effective decisions ($\beta = .285$; $t = 3.078$; $\text{Sig} = .002$). As for deputies' positions, only the programme on managing student affairs showed a significant linkage ($\beta = .196$; $t = 2.493$; $\text{Sig} = .013$).

6. Discussion

This study has emphasised the 'forgotten roles' of deputy principals within the school leadership framework which need to be supported through professional development programmes and initiatives. In this sense, as a school leader, deputy principals also required supportive efforts in terms of their professional development programmes to improve their knowledge and skills in leading schools.

To understand the professional development programmes requested by Malaysian primary school deputy principals, a survey of these programmes was undertaken. Descriptive results revealed that deputy principals requested more programmes related to aspects of school financial management. The reason for this is to prevent their schools from having any financial issues. With profound knowledge of the financial aspects, deputy principals would soon be capable of improving their knowledge and skills related to school finances. In fact, with knowledge of financial management, a deputy principal can manage, supervise and monitor their school's accounts. Where this knowledge is lacking, schools are in danger of being 'listed' as schools which have problems in financial management. The importance of financial management to a deputy principal was previously highlighted by findings from Bulawa and Mhlauli (2018) and Balıkcı (2021). Earlier Cranston *et al.* (2004) pointed out the profound importance of knowledge of financial management to deputy principals seeking to become school leaders.

Beside the aspect of financial management, deputy principals also requested knowledge on school law and managing teachers' competencies. As with principals, deputy principals also believed that knowledge of school law is profoundly important information which they need to acquire as a school leader. In this sense, deputy principals were identified as being highly concerned to acquire knowledge and legal literacy about matters concerned with a school's operational management, the legal rights and responsibilities of parents, the legal matters and rights of teachers and legislative and judicial decisions (Smith, 2018). To deputy principals, knowledge of school law is highly significant to avoid making mistakes which might lead to litigation. Thus, legal knowledge is considered by deputy principals as the second most important knowledge set which can enhance their legal literacy (Trimble, 2017) while leading schools.

Further, knowledge on managing teachers' growth and competencies was another professional development programme requested by deputy principals. As a school leader, deputy principals have enormous responsibilities to assist teachers with programmes that can enrich their professional knowledge and growth, especially programmes on teachers' growth and competencies (Zepeda, 2013). In this sense, deputy principals who are middle leaders and senior teachers are accountable for supporting teachers' growth by improving the quality of their teaching and their instructional practices (Jones *et al.*, 2015). As a school leader, they also need to comprehend the content of the newly revised curriculum and its links to changes in student assessment within the academic subjects on offer (Tahir *et al.*, 2021). In addition, they also requested knowledge on how to improve teachers' professional development such as short programmes on teaching, assessment and guiding student performance. Based on the responses given by deputies, it is assumed that Malaysian school leaders realise their profound influence on students' learning and academic performance. As such, the findings are aligned with previous studies on the importance of school leaders acquiring knowledge and skills in curricular leadership (Ministry of Education, 2013; Abrahamsen, 2018; Chitamba, 2019).

Unexpectedly, deputy principals selected 'managing stress and well-being' as their least-preferred professional development programme. Based on the taxing demands arising from school disciplinary issues, all school leaders, including deputy principals, should be equipped, taught and prepared with knowledge on how to manage their and their colleagues' stress and provided with strategies to cope with stress as a preventative skill (Nhundu, 1999; Tahir *et al.*, 2019). In supporting school leaders with skills on how to encounter stress whilst maintaining their well-being, it is suggested that education authorities incorporate managing stress within the syllabus/contents for their leadership preparation programmes. In fact, such programmes should be widened to include all middle leaders in schools (Jackman, 2009).

In measuring deputies' significant differences, statistical results indicate non- statistically significant differences with reference to deputies' gender and their years of leadership experience. Nevertheless, five of the listed professional development programmes indicated statistically significant differences based on deputies' positions. The results indicated that primary school deputies have their own preferences for requesting knowledge and skills based on their positions at school. For instance, deputies who hold a position concerning student affairs had preferences for courses related to managing student affairs and personal information. Deputies in extra-curricular leadership positions favoured programmes on school law, practical leadership, managing stress and well-being and teamworking. Lastly, in linking deputies' demographic factors with all 14 professional development programmes, it was found that two programmes - network and collaboration and making effective decisions - have significant linkages with deputies' demographic factors. As for deputies' positions, only the programme on managing student affairs showed a significant linkage with deputies' demographic factors.

7. Implications and limitations

This study has proved that deputy principals applaud any efforts to enhance their knowledge and skills based on their professional development programmes whether continuous or involving a series of courses. This study suggests several practical implications:

[1] Education authorities are advised to conduct an initial survey of all school leaders before offering any relevant programmes. This is to understand deputy principals' needs and preferences for programmes they believe to be beneficial and meaningful in enhancing their knowledge and skills.

[2] Deputy principals must be incessantly supported with continuous programmes in order to develop their leadership competencies and professional growth. To deputy principals, continuous programmes and a sequence of workshops related to their leadership competencies are noteworthy in supporting novice and inexperienced school leaders.

[3] Education authorities are asked to introduce mentoring and coaching programmes as part of the initial and informal exposure for deputy principals who actively collaborate with and are guided by their own principals. Through mentoring, many researchers have pointed out the informal collaboration between principals with their deputies in order to enhance deputies' leadership knowledge and skills (Thabethe, 2020; Kwan & Li, 2016).

[4] Education authorities need to support deputy principals with continuous support programmes on financial management with the purpose of improving their knowledge related to school finances and the ways and strategies of overcoming school financial issues and problems. Simultaneously, other relevant courses also need to provide deputies with support programmes such as school law and managing stress and well-being. These may be ICT-based programmes. In organising these programmes, it was suggested that the focus should be more on the practical rather than theoretical aspects of providing deputies with knowledge and skills. In addition, the programmes must also be tailored or matched with deputies' needs and involve group-based or collaborative activities to facilitate mutual cooperation and support by school leaders.

[5] Educational authorities should also consider integrating school leadership subjects or components in their teacher education syllabus and training programmes. The inclusion of the said subjects or components will provide pre-service or in-service teachers with the foundation of school management and leadership and what these roles entail while at the same time broadening their perspectives to include those beyond the typical job scope of a teacher. Additionally, consideration should also be given to the establishment of professional learning communities (PLC) as early as during teacher education programmes. Being in a community which promotes the sharing of knowledge, experiences, and best practices in school management and leadership will undeniably be beneficial for a teacher's professional growth (Adams & Muthiah, 2020; Mei Kin & Abdull Kareem, 2021). Consequently, the knowledge and support obtained through this process can guide and empower teachers as they take on school leadership posts such as deputy principalship or principalship later in their service.

This study has several limitations which need to be acknowledged. First, responses provided by the 318 deputies might differ from other deputies who are not participating in this study and who might have other perspectives and preferences in terms of the programmes they request. Second, this study employed a fully quantitative paradigm which obtained deputy principals' responses using a

questionnaire. Thus, it is suggested that this study might be replicated using qualitative or mixed methods with other deputy principals through interviews and observations.

8. Conclusion

To conclude, these study findings are able to offer insights related to the professional development programmes requested by deputy principals in Malaysian primary schools. The findings also provide suggestions and solutions for local educational authorities in their efforts to support and equip deputy principals with the knowledge and skills of school leadership. In particular, this study also disclosed that financial management is the most preferred programme based on the responses provided by the deputy principals seeking to lead their schools towards excellence. Through these efforts, it is certainly hoped that the findings will be beneficial for deputy principals' professional leadership journeys.

9. Co-author contribution

The first co-author was responsible for the proofreading and data analysis. The second and third co-authors were responsible for theoretical and the conceptual framework of the study, data analyses, proofreading and data collection. The fourth, fifth and sixth co-authors are responsible for the data collection and analysis.

10. Acknowledgement

This research was supported by two matching research grants from the Research Management Centre, Universiti Teknologi Malaysia and Universiti Teknologi Mara:

1. The authors would like to express their gratitude to the Research Management Centre, Universiti Teknologi Malaysia (UTM), for supporting this research under the matching grant scheme with the vote number Q.J.130000.3053.04M00.
2. The authors would also like to express their gratitude to the Research Management Centre, Universiti Teknologi MARA (UiTM), for supporting this research under the matching grant scheme with the Project Code 100-TNCPI/GOV 16/6/2 (019/2022).

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