Outdoor education coaches competency level self-assessment model, co-curriculum centres in Malaysia

Modelo de autoevaluación del nivel de competencia de los entrenadores de educación al aire libre, centros de cocurricula en Malasia

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Abstract

Introduction: This study focuses on the development of a self-assessment model for outdoor education trainers in Malaysia. A trainer competency assessment instrument (OCL-OMR) was previously developed; therefore, there was a need to develop a new competency assessment model. Objective: The objective of the study is to identify the relationship between key competency attributes, including hard skills, soft skills, and meta-skills, with trainers' overall performance to guide co-curricular centres in enhancing their training programs.
Methodology: Using a quantitative design method, namely a One-Shot case study, the researchers assessed 240 trainers from co-curricular outdoor education centres across Malaysia. A stratified sampling method was applied to divide the population of trainers according to the main regions of Malaysia, including the North, West, East, and South regions.
Results: Regression analysis revealed significant relationships across multiple competency sub-attributes: philosophy, history, and psychosocial aspects (R-square = .681, F (3,236) = 167.60, p = .000); hard skills such as safety, environment, and technical expertise (R-square = .865, F (6,233) = 249.77, p = .000); soft skills like teaching, facilitating, and organizing (R-square = .964, F (9,230) = 690.97, p = .001); and meta-skills encompassing leadership, communication, and decision-making (R-square = .970, F (12,227) = 14209.92, p = .001).
Discussion: These findings highlight the comprehensive integration of various competency attributes and their robust influence on trainers' competency levels.
Conclusions: The study concludes that this new competency model provides a structured framework to enhance outdoor education trainers' capabilities, enabling co-curriculum centres in Malaysia to design more effective and holistic training programs.

Keywords

Competency; outdoor education; outdoor education trainer.

Resumen

Introducción: Este estudio se centra en el desarrollo de un modelo de autoevaluación para los instructores de educación al aire libre en Malasia. Anteriormente se desarrolló un instrumento de evaluación de competencias para instructores (OCL-OMR); por lo tanto, era necesario crear un nuevo modelo de evaluación de competencias. Objetivo: El objetivo del estudio es identificar la relación entre los atributos clave de competencia, incluyendo habilidades técnicas, habilidades blandas y meta-habilidades, con el desempeño general de los instructores para guiar a los centros co-curriculares en la mejora de sus programas de formación. Metodología: Utilizando un método de diseño cuantitativo, específicamente un estudio de caso de una sola instancia, los investigadores evaluaron a 240 instructores de centros de educación al aire libre co-curriculares en toda Malasia. Se aplicó un método de muestreo estratificado para dividir la población de instructores según las principales regiones de Malasia: norte, oeste, este y sur. Resultados: El análisis de regresión reveló relaciones significativas entre múltiples subatributos de competencia: filosofía, historia y aspectos psicosociales (R-cuadrado = 0.681, F (3,236) = 167.60, p = 0.000); habilidades técnicas como seguridad, medio ambiente y experiencia técnica (R-cuadrado = 0.865, F (6,233) = 249.77, p = 0.000); habilidades blandas como enseñanza, facilitación y organización (R-cuadrado = 0.964, F (9,230) = 690.97, p = 0.001); y meta-habilidades que abarcan liderazgo, comunicación y toma de decisiones (R-cuadrado = 0.970, F (12,227) = 14209.92, p = 0.001).
Discusión: Estos hallazgos destacan la integración integral de diversos atributos de competencia y su sólida influencia en los niveles de competencia de los instructores.
Conclusiones: El estudio concluye que este nuevo modelo de competencias proporciona un marco estructurado para mejorar las capacidades de los instructores de educación al aire libre, permitiendo a los centros co-curriculares en Malasia diseñar programas de formación más efectivos e integrales.

Palabras clave

Competencia; educación al aire libre; entrenador de educación al aire libre.

Introduction

Previous researchers have provided myriad definitions of Outdoor Education. Today, the definition of Outdoor Education is commonly understood as an educational medium based on experiential learning, where teaching and learning occur through experiences with mother nature that serve as a medium for an educational laboratory (Said et al., 2020). According to Hickman and Stokes (2016), the alternative terms for Outdoor Education include adventure education, adventure programming, outdoor learning, environmental education, adventure therapy, and experiential education. Outdoor Education helps people develop life experiences that are useful for facing future challenges (Said et al., 2021). Participation in outdoor recreation is important for gaining new experiences, enjoying nature, and developing self-confidence (Sidi & Radzi, 2017). Outdoor Education is an experience that provides enjoyment and interesting challenges in nature, with free conducive environments useful for developing positive feelings by eliminating negative ones such as anger and sadness (Bilton, 2010). Additionally, it has been proven that participating in Outdoor Education Programmes helps to reduce anxiety levels (Hernawan et al., 2024).

Outdoor Education activities are a top choice among Malaysians every year. Malaysia recorded a 53.1% level of involvement in such activities within Malaysian society in 2019 (Md Amin, 2020). Incorporating outdoor activity-based learning into the education system can help reduce the risk of boredom and a lack of enthusiasm while studying. Gómez-Barrios et al.'s (2024) reported that classes conducted in continuous contact with the natural environment contribute to improving motivation, reducing students' demotivation in the courses taught. Previous systematic studies have also found a positive relationship between outdoor time and physical activity. Overall, the time spent on outdoor activities has positive effects on physical activity, sedentary behaviour, and cardiorespiratory fitness (Gray et al., 2015).

The combination of physical activity and being in nature is recognized as providing a range of significant benefits. Nowadays, Outdoor Education and Outdoor Recreation activities are viewed not only as leisure activities but also as ways to increase fitness levels and a source of income. The increasing demand for Outdoor Education activities has had a positive impact on the Outdoor Education world in Malaysia. Outdoor sports benefit practitioners in multiple ways, namely physical health, mental health and well-being, education and life-long learning, active citizenship, crime-reduction, and anti-social behaviour as well as additional benefits (Eigenschenk et al., 2019). Many agencies and companies are producing skilled trainers that focus on delivering their activities. Increased demands for Outdoor Education activities have naturally invited the need for trainers to demonstrate their competency level. Therefore, the Outdoor Education Self-Assessment Competency Level Instrument (OCL-OMR) (Sidi & Radzi, 2017) will lead to fundamental changes in the Outdoor Education arena in Malaysia. The existence of self-assessment trainer competency level instruments has indirectly created a new competency model for Outdoor Education trainers in Malaysia. However, there is limited research regarding trainer development competency models in the country. Research in the field of Outdoor Education or Outdoor Recreation is often focused on the effects of camping programmes, awareness of nature (Md Amin, 2010), and coherence in Outdoor Education (Jaffry, 2012).

Co-Curricular Center

A Co-Curricular Centre is an organization responsible for planning, managing, and organizing all Outdoor Education activities at the school level. Outdoor Education activities in schools mostly rely on the organization from district or state Co-curricular Centres. This is because outdoor recreational activities are risky and challenging due to their outdoor settings (Sidi, Sulaiman, & Remeli, 2019). There are 14 state Co-Curricular Centres in Malaysia, which form the major centres for Outdoor Education activities at school. Besides that, each state has at least two Co-Curricular Centres, that also act as focus centres for Outdoor Education activities at the district level. Both state and district Co-Curricular Centres are more focused on Outdoor Education activities and centralized training for students and Outdoor Education Trainers.

Self-Competency Assessment for Outdoor Education Trainer (OCL-OMR)

This self-assessment instrument was initially developed by Mohd Said, Md Taff, Hashim, and Zakaria (2020). The instrument (OCL-OMR) measures the competency levels of Outdoor Education Trainers

based on their attribute and skills. This instrument has 75 assessment items that focus on the mastery of Outdoor Education activities by trainers in Malaysia. Additionally, there are 12 sub-attributes or competency components that Outdoor Education Trainers in Malaysia must master. The existence of this instrument has indirectly led to the development of a competency model for Co-Curriculum Centre Outdoor Education Trainers. A self-assessment competency model for Outdoor Education Trainers in Malaysia (OCL-OMR) is a requirement for the Outdoor Education field in the country. This competency model aims to serve as a benchmark for the development of training modulus that are more systematic and comprehensive in producing competent and competitive Outdoor Education Trainers. Therefore, researchers recognised the need to develop or create a competence assessment model that tailored to the Outdoor Education field in Malaysia.

This research will determine the most suited assessment competency model for Outdoor Education Trainers in Malaysia's Co-Curriculum Center States Zones using self-assessment instrument, via the following steps:

Determining the influence of foundation sub-attributes on the level of competency model of Outdoor Education Trainers in Co-Curricular Centre State Zones in Malaysia.

Determining the influence of hard skills sub-attributes on the level of competency model of Outdoor Education Trainers in Co-Curricular Centre State Zones in Malaysia.

Determining the influence of soft skills sub-attributes on the level of competency model of Outdoor Education Trainers in Co-Curricular Centre State Zones in Malaysia.

Determining the influence of meta skills sub-attributes on the level of competency model of Outdoor Education Trainers in Co-Curricular Centre State Zones in Malaysia.

Determining the combined influence of foundation, hard skills, soft skills, and meta skills attributes on the competency level model of Outdoor Education Trainers in Co-Curricular Center State Zones in Malaysia.

Method

To determine the best competency assessment for Outdoor Education Co-Curricular Trainers in Malaysia, the researchers employed a one-shot case study method. This is because the purpose of the research is not to compare pre- and post-treatment groups, but simply to evaluate the overall competency level of trainers without the involvement of the treatment group.

Participants

The researchers divided the four main zones in Malaysia into the North Zone (Perlis, Kedah, Pulau Pinang, and Perak), West Zone (Selangor, Kuala Lumpur, and Putrajaya), South Zone (Negeri Sembilan, Melaka, and Johor), and East zone (Kelantan, Terengganu, and Pahang). The research population included Outdoor Education Co-Curricular Centre Trainers in Malaysia. Using stratified sampling, each zone went through random votes to represent the research population from that zone. Therefore, to determine the suitable assessment competency model for Outdoor Education Co-Curricular Centre Trainers, the researchers used the OCL-OMR questionnaire instrument.

Procedure

The respondents were asked to complete the questionnaire instrument (OCL-OMR) during a fitness assessment programme for Co-Curricular Trainers, held at the beginning of every year. All trainers were gathered at the State Co-Curricular Centres for a fitness assessment programme. For data gathering using this instrument, the researchers employed two methods, namely posting the OCL-OMR questionnaire to the State Co-Curricular Centres in more distant zones, including the East, South, and North zones, while for the West Coast zone, the researchers were present to distribute the questionnaire in person. The researchers worked with the head instructors to ensure a smooth distribution process and collection of the completed questionnaires.

Data analysis

The statistical analysis described in the study is using SPSS 20.0 (Statistical Package for the Social Sciences). The study uses regression analysis as the primary data analysis method. This statistical technique evaluates the relationships between the dependent variable (trainers' competency levels) and multiple independent variables (sub-attributes of competency). Specifically, the analysis examines how various sub-attributes—categorized under philosophy, history, psychosocial, hard skills (e.g., safety, environment, technical), soft skills (e.g., teaching, facilitating, organizing), and meta-skills (e.g., leadership, communication, decision-making)—influence the overall competency levels of outdoor education trainers. The study also uses R-squared values, F-statistics, and p-values to assess the strength and significance of these relationships. These statistical measures indicate the proportion of variance explained by the model and the significance of the results in identifying robust relationships between attributes and competency.

Results

A total of 240 respondents filled out and answered the questionnaire during the meeting session with Outdoor Education Trainers at their respective state Co-Curriculum Centres. All distributed questionnaires were successfully collected by the researchers through several methods, such as postal delivery and direct meetings with the coaches themselves. Among the coach respondents, the majority of them were male.

Table 1. Distribution of Respondent Data

Item		Frequency (f)	Percentage (%)
Gender	Male	177	73.8
	Female	63	26.3
Age	21- 30	22	9.2
	31- 40	97	40.4
	41- 50	97	40.4
	51-60	24	10.0
Religious	Islam	206	85.8
	Buddhist	16	6.7
	Hindu	10	4.2
	Christian	8	3.3
Level of education	Diploma	6	2.5
	Degree	175	72.9
	Master's degree	58	24.2
	Doctoral degree (PhD)	1	.4
Level of coaching	Basic coach	76	31.7
	District coaches	115	47.9
	State coaches	45	18.8
	State senior coaches	4	1.7

Table 1 showed the descriptive results of the total respondents, n=117 consisted of male coaches (73.7%), while n=63 were female coaches (26.3%). In terms of religion, it was found that there were more Muslim respondents compared to Buddhist, Hindu, and Christian coaches. Specifically, 85.3% of the coaches were Muslim, 6.7% were Hindu (the second largest number of respondents), 4.2% were Buddhist, and 3.3% were Christian. Meanwhile, in terms of age involvement among the coaches, it was found that 22 coaches (9.2%) were aged 21-30 years, followed by respondents aged 31-40 years with 97 coaches (40.4%), and the rest of the respondents aged 41-50 years with 97 coaches (40.4%). Additionally, 10% of the respondents were aged 51-60 years. Next is the distribution of education levels among the study respondents. The results showed that 6 coaches (2.5%) were education diploma holders, while respondents held a master's degree were 175 people (72.9%), followed by 58 coaches (24.2%) with an advanced degree, and 1 respondent (4%) held a doctoral degree. The next distribution is related to the level of coaches involved in the study. The results of the analysis revealed that 76 coaches (31.7%) were basic coaches, 115 coaches (47.9%) were district coaches, 45 coaches (18.8%)

were state coaches, and the highest level, 4 coaches (1.7%) were state senior coaches. Table 1.0 shows the detailed findings of the study respondents' data.

Table 2 showed, determining the appropriate assessment model for Outdoor Education Co-Curricular Centre Trainers, the researchers employed multiple regression analysis. This analysis was used to determine the suitability and existence of a new model to evaluate Outdoor Education Co-Curricular Center Trainers in Malaysia. Therefore, according to the multiple regression analysis, the researchers required at least 148 respondents [50+8(12) = 148] as research samples. The number of respondents in this research fulfilled that requirement. The findings for the first research question, as Table 2.0 explains, reveal that the multiple correlation coefficient analysis resulted in an R-square value of .68. This shows that 68.1% of the variance in the foundation attribute is affected by the three independent variables (philosophy, history, and psychosocial) within the foundation attribute competency level of Outdoor Education State Co-Curricular Centres in Malaysia. Multiple regression analysis results in the table below show that the overall sub-attribute foundation had a significant relationship with the competency level of Outdoor Education Trainers, with R-square = .681, F (3,236) = 167.60, p = .000.

Table 2. Competency Level (Foundation) for Outdoor Education State Co-Curricular Centre Trainers in Malaysia.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-square Change	F Change	df1	df2	Sig. F Change
1	.825(a)	.681	.676	17.00	.681	167.60	3	36	.000

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	145326.12	3	48442.05	167.60	.001(a)
	Residual	68213.60	236	289.04		
	Total	213539.73	239			

*p< .05.

Table 3. Competency (Foundation) level assessment of Outdoor Education Co-Curricular Centre Trainers for state zones in Malaysia.

Sub-Attribute	Unstandardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-.440	.891		-.494	.622
Philosophy	1.078	.022	.153	49.28	.001
History	.954	.021	.133	45.31	.001
Psychosocial	1.065	.026	.146	40.86	.001

Meanwhile, table 3.0 explain the results of the multiple regression analysis, where the p-values for all independent variables were not more than α = 0.05. Thus, all sub-attribute or independent variables had a significant relationship with the competency level (foundation) needed for Outdoor Education Co-Curricular Centre Trainers in the selected zones in Malaysia. This was because the p-value showed a significance value of .001.

Table 4 showed, the multiple coefficient correlation analysis resulted in an R-square value of .865, indicating that 86.5% of Outdoor Education Trainers' competency is explained by the model. Based on the Table 4.0, it highlights that the demand for hard skills is higher compared to the foundational skills. Among others, it also explains that 86.5% of the variation in hard skills is affected by all three sub-attributes (security, technical, and environment). The results of the regression analysis show a significant relationship for the overall sub-attribute for hard skills, with values of R-square = .865, F (6,233) = 249.77, p=.000.

Table 4. Competency Level (Hard Skills) for Outdoor Education State Co-Curricular Centre Trainers in Malaysia.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-square Change	F Change	df1	df2	Sig. F Change
2	.930(b)	.865	.862	11.10	.185	106.72	3	233	.000

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	184806.56	6	30801.09	249.77	.001(b)
	Residual	28733.18	233	123.32		
	Total	213539.73	239			

*p< .05.

Table 5 showed, the results of the multiple regression analysis, where the p-values for all independent variables were not more than α = 0.05. Thus, all sub-attribute or independent variables had a significant relationship with the competency level (hard skills) needed for Outdoor Education Co-Curricular Centre Trainers in the State Zones in Malaysia. This was because the p-value resulted in a significant value of .001. The research findings show that all sub-attributes recorded a good value (p=.000). This explains the relevant significance of the key attribute (hard skills) in the competency model.

Table 5. Competency (Hard Skills) level assessment of Outdoor Education Co-Curricular Centre Trainers for State Zones in Malaysia.

Sub-Attribute	Unstandardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-.440	.891		-.494	.622
Safety	.913	.030	.100	30.46	.001
Technical	.944	.024	.123	39.95	.001
Environment	.840	.031	.091	27.22	.001

Table 6, showed multiple correlation coefficient analysis resulted in an R-square value of .964, indicating 96.4% of the competency level of Outdoor Education Co-Curricular Centre Trainers for the State Zones in Malaysia. The regression analysis results for the sub-attributes of soft skills (teaching, facilitating, and organisation) had a significant relationship with the competency level of Outdoor Education Co-Curricular Trainers with R-square = .964, F (9, 230) = 690.97, p = .001.

Table 6. Competency Level (Soft Skills) for Outdoor Education State Co-Curricular Centre Trainers in Malaysia.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-square Change	F Change	df1	df2	Sig. F Change
3	.982(c)	.964	.963	5.75	.099	212.57	3 3	230	.001

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	205923.60	9	22880.40	690.97	.001(c)
	Residual	7616.14	230	33.11		
	Total	213539.73	239			

*p< .05.

Table 7. Competency (Soft Skills) level assessment of Outdoor Education Co-Curricular Centre Trainers for State Zones in Malaysia.

Sub-Attribute	Unstandardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-.440	.891		-.494	.622
Teaching	1.105	.035	.117	31.77	.001
Organising	1.033	.027	.134	38.00	.001
Facilitating	.958	.027	.113	35.24	.001

The findings in Table 7.0 also explain the results of the multiple regression analysis, where the p-values for all independent variables were not more than α = 0.05. This concludes that all sub-attributes or independent variables had a strong relationship with the competency level (soft skills) needed for Outdoor Education Co-Curricular Centre Trainers in the States Zone in Malaysia. This was because the p-value resulted in a significance value of .001. The research findings show that all sub-attributes recorded a good value (p=.001). This shows the significant relationship of the key attribute (soft skills) in the competency model.

Table 8. Competency (Meta Skills) for Outdoor Education Co-Curricular Centre Trainers for State Zones in Malaysia.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-square Change	F Change	df1	f2	Sig. F Change
4	.976(d)	.970	.971	1.12	.034	1954.28	3	27	.000

Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	213255.84	12	17771.32	14209.91	.001(d)
	Residual	283.90	227	1.25		
	Total	213539.73	239			

Table 8, showed a significance level of a predictor or independent variables on the dependent variable (meta-skills), which is the competency level of Outdoor Education Co-Curricular Centre Trainers in Malaysia. The findings for the fourth sub-attribute, which is meta-skills (leadership, communication, and decision making) on Outdoor Education Co-Curricular Trainers show a significant value with R-square = .970, F (12,227) = 14209.92, p = .001.

The findings in Table 9, further explain the results of the multiple regression analysis, where the p-values for all independent variables were not more than α = 0.05. This concludes that all sub-attributes or independent variables had a close relationship with the competency level (meta-skills) needed for Outdoor Education Co-Curricular Centre Trainers in the selected state zones in Malaysia. This was because the p-value resulted in a significance value of .001. The research findings show that all sub-attributes recorded a good value (p=.001). This shows the significant relationship of the key attribute (meta skills) in the competency model.

Table 9. Competency (Meta Skills) level assessment of Outdoor Education Co-Curricular Centre Trainers for State Zones in Malaysia.

Sub-Attribute	Unstandardised Coefficients		Standardised Coefficients		
	B	Std. Error	Beta	t	Sig
(Constant)	-.440	.891		-.494	.622
Leadership	.951	.030	.103	31.97	.001
Communication	1.021	.032	.110	31.79	.001
Decision Making	1.050	.025	.134	41.90	.001

Table 10, the most crucial matter for the researcher is to develop a new competency model framework for the relevant population. The model is to be used in the field of outdoor education in the future and aims to act as a guide for structuring the competency of fellow outdoor education trainers. A multiple linear regression analysis was performed to determine if there was any effect in the influence of the main attributes in the "brick wall" model, which consisted of foundation, hard skills, soft skills, and meta-skills, on the competency levels of Outdoor Education trainers in Malaysia. The findings above show the correlation analysis of various coefficients. The R-square value (.681) represents the independent variable of foundation, approximately 68.1% of the competency levels among Outdoor Education Co-Curriculum Centre Coaches in Malaysia. The R-square value for the hard skills variable also shows a value of .865 that represents (86.5%) of the competency of outdoor education coaches. This indicates that the need for hard skills is higher compared to the foundation. The R-square value for the soft skills variable indicates approximately .964, representing 96.4%. This value is higher than that of hard skills variable and it indicates that soft skills are fundamental for a competent coach. The fourth variable, meta-skills, indicates an R-square value of .976, representing 97.6%. This explains the more dominant requirement for meta-skills variable in ensuring the competency level of Outdoor Education Coaches in Co-Curriculum Centres in Malaysia.

Table 10. Competency for Outdoor Education Co-Curricular Centre Coaches State Zones in Malaysia.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R-square Change	F Change	df1	df2	Sig. F Change
1	.825(a)	.681	.676	17.00	.681	167.60	3	236	.001
2	.930(b)	.865	.862	11.10	.185	106.72	3	233	.001
3	.982(c)	.964	.963	5.75	.099	212.57	3	230	.001
4	.990(d)	.976	.971	1.12	.034	1954.28	3	227	.001

Table 11. Bivariate and Partial Predictor Correlations on the Competence of Outdoor Co-Curriculum Education Coaches in Malaysia.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	145326.12	3	48442.05	167.60	.001(a)
	Residual	68213.60	236	289.04		
	Total	213539.73	239			
2	Regression	184806.56	6	30801.09	249.77	.001(b)
	Residual	28733.18	233	123.32		
	Total	213539.73	239			
3	Regression	205923.60	9	22880.40	690.97	.001(c)
	Residual	7616.14	230	33.11		
	Total	213539.73	239			
4	Regression	213255.84	12	17771.32	14209.91	.001(d)
	Residual	283.90	227	1.25		
	Total	213539.73	239			

To explain the findings of the above analysis, the researchers highlight the significant level of the predictor or independent variable on the dependent variable, which is the competency level of Outdoor Co-Curriculum Education Coaches in Malaysia. Multiple regression analysis showed a relationship between the independent variables (foundations, hard skills, soft skills, and meta-skills attributes) and the coaches' competency levels. The analysis of the foundation attributes (philosophy, history, and psychosocial) on the competence of Outdoor Co-Curriculum Education Coaches showed significant results, with R-square = .681, Adjusted R-square = .676, F (3,236) = 167.6, p = .000. Similarly, for the attribute of hard skills (safety, technical, and environment) on the competence of Outdoor Co-Curriculum Education Coaches, the results were also significant, with R-square = .865, Adjusted R-square = .862, F (6,233) = 249.77, p = .000. The sub-attributes of soft skills (teaching, facilitating, and organising) on the competence of Outdoor Co-Curriculum Education Coaches showed significant values as well, with R-square = .964, Adjusted R-square = .963, F (9,230) = 690.97, p = .000. The fourth sub-attribute, meta-skills (leadership, communication & decision making) on the competence of Outdoor Co-Curriculum Education Coaches also indicated significant results, with R-square = .976, Adjusted R-square = .971, F (12,227) = 14209.92, p = .000.

Table 12. The assessment of competence levels of Outdoor Co-Curriculum Centre External Education Coaches for State Zones in Malaysia.

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-.440	.891		-.494	.622			
	Philosophy	1.078	.022	.153	49.278	.001	.660	.956	.119
	History	.954	.021	.133	45.313	.001	.544	.949	.110
	Psychosocial	1.065	.026	.146	40.859	.001	.745	.938	.099
	Safety	.913	.030	.100	30.456	.001	.693	.896	.074
	Technical	.944	.024	.123	39.950	.001	.652	.936	.097
	Environment	.840	.031	.091	27.223	.001	.707	.875	.066
	Teaching	1.105	.035	.117	31.768	.001	.784	.904	.077
	Organization	1.033	.027	.134	38.002	.001	.750	.930	.092
	Facilitation	.958	.027	.113	35.241	.001	.662	.919	.085
	Leadership	.951	.030	.103	31.972	.001	.655	.905	.077
	Communication	1.021	.032	.110	31.788	.001	.676	.904	.077
	Decision Making	1.050	.025	.134	41.898	.001	.699	.941	.101

a. Dependent variable: Competency

The similarities of regression analysis based on weighting are as follows: +1.078 Philosophy, + 0.954 History, + 1.065 Psychosocial, + 0.913 Safety, + 0.944 Technical, + 0.840 Environment, + 1.105 Teaching, +1.033 Organisation, +0.958 Facilitation, + 0.951 Leadership, + 1.021 Communication, + 1.050 Decision Making. Following the multiple regression analysis, the p-values for all these independent variables were found to not exceed 0.05. It can be concluded that all these sub-attributes or independent variables had a very strong relationship with the competency requirements of Outdoor Co-Curriculum Centre Education Coaches in Malaysia. This was because the p-value resulted in a significance value of .000.

Based on the results of the regression analysis, Table 14.0 below explains that all predictors or sub-attributes involved show a highly significant correlation with the competencies of Outdoor Education coaches in Malaysia. The findings also clarify the dominant predictors that are closely related to the effectiveness of State Zone Outdoor Co-Curriculum Centre Education coaches in Malaysia.

However, the dominant sub-attributes or predictors seem to differ from those in the original model used by the researchers. As a result of these findings, the researchers have explained the functionality of the built-in model, highlighted the advantages of the new model, and structured the focus on strengthening the level of competency of Outdoor Education coaches in the future. Upon examining the functionality of this latest model, the researchers found that the OCL-OMR model emphasizes and enhances coaches' competencies on pedagogical skills in delivering theoretical contents of Outdoor Education or practical activities of Outdoor Education itself. This is proven with the predictor of teaching skills competencies, with a high correlation value of r=.784. The functionality of the competency model OCL-OMR is particularly very significant for Co-curricular Outdoor Education coaches because all these coaches are primary and secondary school teachers. The model is also applicable comprehensively to teachers of Physical Education, Health Education, and Sports Science, who are involved in the organization of

Outdoor Education activities in schools. The Outdoor Education coach competency model OCL-OMR is also adaptable for use by Outdoor Recreation coaches in determining their level and mastery of competency skills. The researchers identified several advantages of this built-in competency model. Among the advantages of this competency model is its capability to determine the level of mastery of an Outdoor Education coach has over the attributes and sub-attributes outlined in the model. The advantages of this developed model include its ability to help the State Co-Curriculum Centres identify the areas of focus and training that can be applied among senior coaches. This model can also help the Co-Curriculum Centre to design training modules that better suit the needs of its coaches. Through this model as well, the State Co-Curriculum Centre will be able to identify the existing levels of new coaches who aspire to become Outdoor Education Coaches. These developed instruments can serve as a guide for the Co-Curriculum Centre in determining the TID (Talent Individual Development) tendencies of new coaches.

Table 13. Bivariate and Partial Predictor Correlations with Coach Competency

Predictor	Correlation between each predictor with the competence of Outdoor Education coaches	Sig
Philosophy	.660	.001
History	.544	.001
Psychosocial	.745	.001
Safety	.693	.001
Technical skills	.652	.001
Environmental Skills	.707	.001
Teaching Skills	.784	.001
Organisational Skills	.750	.001
Facilitation Skills	.662	.001
Leadership skills	.655	.001
Communication skills	.676	.001
Decision-Making Skills	.699	.001

Table 14. Dominant predictor findings for State Zone Outdoor Co-Curriculum Centre Education coaches in Malaysia.

No.	Predictors	R-value
1	Teaching	r=.784
2	Organising	r=.750
3	Psychosocial	r=.745
4	Environment	r=.707
5	Decision making	r=.699
6	Safety	r=.693
7	Communication	r=.676
8	Facilitating	r=.662
9	Philosophy	r=.660
10	Leadership	r=.655
11	Technical	r=.652
12	History	r=.554

Discussion

The findings of this study significantly contribute to understanding the competencies required for Outdoor Education trainers in Malaysia, as evaluated through the self-assessment model. The results confirm the strong influence of foundational, hard skills, soft skills, and meta-skills attributes on trainers' competency levels. This supports existing literature suggesting that a comprehensive competency framework is crucial for professional development in outdoor education (Eigenschenk et al., 2019; Gray et al., 2015). The significant relationships found between all sub-attributes and trainers' competency levels align with Bilton's (2010) assertion that outdoor education fosters personal and professional growth through experiential learning. Similarly, the emphasis on soft and meta-skills, such as teaching, leadership, and decision-making, corroborates the findings of Hickman and Stokes (2016), who highlighted these attributes as pivotal in reflective outdoor practice. The high R-square values, particularly for meta-skills (97.6%), demonstrate their dominant role in shaping effective trainers, suggesting that outdoor education is as much about leadership and communication as technical proficiency.

This competency model has practical implications for the design and delivery of training programs. By focusing on specific sub-attributes like psychosocial skills and facilitation, training modules can be

tailored to address gaps in trainers' capabilities. The Co-Curricular Centres in Malaysia could adopt this model as a standard framework to evaluate and improve their training programs. Furthermore, the findings underscore the need to incorporate ongoing professional development opportunities that enhance both soft and hard skills, which are essential for adapting to the dynamic requirements of outdoor education. While the model provides a robust foundation, future research could explore its applicability across diverse cultural and geographical contexts. Comparing competency levels of trainers in Malaysia with those in countries with more established traditions in outdoor education could yield insights into global best practices. Additionally, longitudinal studies could examine how trainers' competencies evolve over time with the implementation of this model, offering a more dynamic perspective on professional growth in outdoor education. It is important to note that this study employed a one-shot case study design, which limits the ability to infer causality. Further research using longitudinal or experimental designs could provide a more comprehensive understanding of the factors influencing trainer competency. Moreover, while the sample was stratified across Malaysian regions, the findings may not fully generalize to trainers operating in non-traditional or urban settings.

Conclusions

The development of the Outdoor Competency Level model is a significant step toward professionalizing outdoor education in Malaysia. By addressing both the technical and interpersonal dimensions of competency, this model offers a holistic approach to trainer development. The study's findings not only enrich the academic discourse but also provide actionable insights for practitioners and policymakers, paving the way for a more effective and inclusive outdoor education landscape. The results of the study showed a significant relationship between the items and sub-attributes in the model. After thoroughly performing regression analysis, several new findings emerged in this study. Firstly, through the analysis, the findings contributed to the development of a new competency model for Outdoor Education coaches under the Ministry of Education Malaysia (KPM). This new model was built based on predictors of competency level requirements for Co-Curriculum Center Outdoor Education coaches, with a special focus on the landscape of outdoor education in Malaysia. Secondly, the introduction of an instrument for measuring Outdoor Competency Levels and its effects on outdoor education coaches at Co-curriculum Centres across Malaysia. In addition, training modules can be developed from this model. This module can ensure a high level of competence among coaches. Other recommendations from this study include improving the competency levels of outdoor recreation coaches, especially in outdoor recreation activities. In addition, it may be interesting to compare the results obtained with coaches from other regions or countries that may have a greater tradition of training in outdoor sports and education. The researchers have great hope that this study will contribute to the improvement of outdoor education and outdoor recreation in the future.

In conclusion, this study offers valuable insights into the competency level of Outdoor Education coaches within the Ministry of Education Malaysia, specifically at the Co-Curriculum Centres. The regression analysis conducted has led to the development of a new competency model, which will serve as a guide for future efforts to improve outdoor education in Malaysia. The creation of the Outdoor Competency Level instrument highlights a significant step towards standardizing the competency requirements for coaches, ensuring that they are well-equipped to meet the demands of outdoor education. Moreover, the development of targeted training modules will further enhance the skills and effectiveness of these coaches. By implementing these findings, the competency level of outdoor recreation coaches can be improved, ultimately elevating the overall quality of outdoor education in Malaysia. This study holds the promise of shaping the future landscape of outdoor education, contributing to the professional growth of coaches and benefiting the students they serve.

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