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The Impact of Fieldwork Courses on the Students' Learning Experience and Academic Performance

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ABSTRACT

Fieldwork courses offer hands-on learning experiences beyond traditional classrooms, aiming to merge theory with practice. This research seeks to identify the benefits of fieldwork courses and the impact of these benefits on the learning experiences and academic performance of undergraduate students enrolled in the Plantation Management Programme at Universiti Teknologi MARA (UiTM). To collect data, quantitative research utilising a survey methodology was employed. A series of questionnaires were distributed randomly using Google Forms, with responses received from 111 students. Statistical analyses, including descriptive, correlation, and regression analyses, were conducted using Statistical Package for Social Science version 28 to interpret the gathered data. Findings reveal that respondents strongly agree on the benefits of fieldwork, particularly in experiential learning (μ=4.13) and personal growth (μ=3.75). Correlation analysis indicates a significant relationship between experiential learning and personal growth ($r(109) = .432$, $p = .001$), with a 14.3% impact as per regression analysis. ANOVA confirms the significant effect of experiential learning on personal growth ($p < 0.001$). Thus, the study confirms the hypothesis, demonstrating that fieldwork courses positively impact students' personal growth and confidence by exposing them to experiential learning.

Keywords:
Academic, fieldwork, impact, learning experience, student

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1. Introduction

Fieldwork courses are an integral part of education in various disciplines, offering students hands-on experience and the opportunity to apply theoretical knowledge in real-world settings. These courses enhance learning and academic performance by immersing students in practical environments that complement their classroom education. Previous findings reported a positive impact of fieldwork courses on student's learning experience and academic performance across various disciplines. In a study conducted by Scott *et al.*, [1], they reported that the students perceive fieldwork as enjoyable and valuable for their university learning, lifelong learning, and career aspirations, and they report more effective learning in the field compared to classroom settings. Additionally, the fieldwork courses significantly improve affective outcomes, with students reporting more positive attitudes after participating in field courses, and it can reduce anxiety related to learning

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methods [2]. Fieldwork courses also have a positive impact on student's learning experiences and academic performance across various disciplines. Undergraduate biology students who attended a residential field course showed improved cognitive learning and higher academic performance in subsequent modules [3]. Also, interdisciplinary and international fieldwork enhances the learning experience by improving students' understanding of their own and other disciplines, communication skills, and methodological abilities [4]. Participation in field courses is linked to knowledge gains, which are the most reported outcome, although barriers such as cost can limit student participation [5]. In order to assess the impact of fieldwork courses in the field of plantation management programs at the university level, this research seeks to identify the benefits of fieldwork courses and the impact of these benefits on students' learning experiences and academic performance of undergraduate students enrolled in the Plantation Management Program at Universiti Teknologi MARA (UiTM). By examining the dynamics between theoretical learning and practical engagement, this study provides a detailed relationship between the benefits of fieldwork courses and their contribution to students' academic performance. With the empirical evidence and reasoning, the following hypothesis has been formulated:

H1: Fieldwork courses have exposed students to experiential learning and positively impacted the academic performance of the students

1.2 Research Question

Our research aims to identify the benefits of fieldwork courses and the impact of these benefits on the learning experiences and academic performance of undergraduate students enrolled in the Plantation Management Programme at Universiti Teknologi MARA (UiTM). Hence, our main research question is:

"What are the benefits of fieldwork courses and the impact of these benefits on students' learning experiences and academic performance of undergraduate students enrolled in the Plantation Management Programme at Universiti Teknologi MARA (UiTM)?"

1.3 Research Objectives

This research seeks to identify the benefits of fieldwork courses and their impact on the learning experiences and academic performance of undergraduate students enrolled in the Plantation Management Programme at Universiti Teknologi MARA (UiTM).

2. Methodology

2.1 Approaches

This study employed a quantitative approach, utilising a survey methodology to investigate phenomena impacting undergraduate students enrolled in a Plantation Management program at Universiti Teknologi MARA Jasin, Melaka. Quantitative research aims to garner insights and comprehension of various occurrences affecting individuals through systematic numerical data collection and precise measurement [6]. In this study, surveys were chosen for their non-intrusiveness compared to interviews or observations, allowing respondents to complete them at their convenience. 28 close-ended questionnaire items were randomly distributed using a Google Forms link through WhatsApp Messenger to 154 undergraduate students, specifically those in their first

semester undertaking fieldwork courses. According to the Raosoft sample size calculator [7], 111 surveys are sufficient for analysis at a 95% confidence level. Raosoft calculators are widely embraced in social science research due to their user-friendly nature and efficacy in determining sample sizes [8].

2.2 Instrumentation

The data collection tool consisted of four sections: A, B, and C. Section A focused on demographic variables such as age, gender, locality, level of education, and previous agricultural background. Section B contained ten (10) items addressing the benefits students gained during fieldwork courses. In contrast, Section C comprised 12 items aimed at eliciting responses regarding the impact of fieldwork courses on students' learning experiences and academic performance. Nominal and ordinal scales were employed to measure the variables, with a five-point Likert scale ranging from Strongly Agree (SA) to Strongly Disagree (SD) utilised for responses. A preliminary test was conducted to identify design flaws and other potential issues with the questionnaire, and adjustments were made based on the results before final data collection. Furthermore, the reliability analysis, using Cronbach's alpha, was carried out to assess the internal consistency of items within each construct of the instrument.

2.3 Statistical Analysis

The data were analysed using version 28 of the Statistical Package for the Social Sciences (SPSS). Various statistical methods were employed to summarise the data, including descriptive analysis, reliability analysis, correlation coefficient, and regression analysis. The research questions posed in the study were addressed using percentages and means. All data collected from the questionnaire were systematically presented and interpreted. Next, the relationship between the benefits gained by students during fieldwork practices and their impact on learning performance was explored using the Pearson correlation coefficient. This coefficient measures the strength of the relationship between two variables and their association [9]. Its value ranges from -1 to 1, with 1 indicating the strongest positive correlation and -1 indicating the strongest negative correlation. The hypothesis test was conducted at a confidence level of 95%, with a significance level of 0.05. Additionally, simple regression analysis was employed to determine the functional relationship between independent and dependent variables, aiming to conclude whether fieldwork practices impact students' learning experiences and academic performance.

3. Results and Discussion

The findings of the study are discussed and presented as follows.

3.1 Reliability Analysis

The reliability of the Likert scale questionnaire was assessed using Cronbach's Alpha, which measures internal consistency. This calculation was performed utilising SPSS for reliability analysis. The alpha coefficient's value falls from 0 to 1, with higher values indicating greater scale reliability. Table 1 presents Cronbach's alpha values for the variables in this study. According to Sekaran and Bougie [10], Cronbach's Alpha value of 0.700 or higher suggests strong internal consistency of the instruments. Consequently, the results reveal that the overall reliability analysis of variables related

to benefits gained from fieldwork courses yielded a score of 0.936, while the impact of fieldwork courses on students' learning experiences and academic performance was 0.859. Thus, all variables demonstrate a high level of reliability that is deemed acceptable.

Table 1
Summary of Reliability Statistics

Variable	Cronbach's Alpha	No. of items
Benefits of Fieldwork Courses	.936	10
Impact of Fieldwork Courses	.859	12

3.2 Demographic Profile of the Respondents

Table 2 reports the demographic profile of the 111 undergraduate students at Universiti Teknologi MARA Jasin, Melaka. The survey showed that the majority are male (65.8%) and predominantly aged between 18 and 20 (93.7%). This may be linked to the job opportunities for women in Malaysia's plantation sector. This sector has been predominantly male dominated in recent years, with only a small percentage of women involved. This gender disparity is associated with various issues and challenges, such as the physical demands of the work, safety and health concerns, managing male foreign workers, and prevailing stereotypes. [11,12]. However, the increasing number of female students in these courses may be attributed to the growing involvement of women in the agriculture sector over the past several years, particularly in areas such as agricultural research, education, and entrepreneurship related to the agriculture industry [13,14]. Most students come from rural areas (64.0%) with SPM qualifications (63.1%). Only smaller percentages of the students have Pre-Diploma (24.3%) or Diploma qualifications from other universities (12.6%). The group is nearly evenly split regarding their agricultural science background from school, with 46.8% having such a background and 53.2% not having it.

Table 2
Demographic Profiles of the Undergraduate Students (n=111)

Demographic profile	Category	Frequency	Percentage (%)
Gender	Male	73	65.8
	Female	38	34.2
Age groups	18 - 20	104	93.7
	21 - 23	6	5.4
	24 - 26	1	0.9
Location of locality	Rural area	71	64.0
	Urban area	40	36.0
Academic Qualification	SPM	70	63.1
	Pre-Diploma	27	24.3
	Diploma from other universities	14	12.6
Agricultural science background in school	Yes	52	46.8
	No	59	53.2
Previous experience in fieldwork practice	Yes	51	45.9
	No	60	54.1

Additionally, a slight majority (54.1%) lack previous fieldwork practice experience, while 45.9% have had some fieldwork experience. This suggests that most students pursuing a diploma after completing SPM come from rural areas, bringing with them a variety of educational backgrounds and levels of practical fieldwork experience. This finding aligns with recent statements by others indicating that the engagement of young people in the agriculture sector is influenced by their familiarity with

local agricultural practices. Individuals residing in rural areas tend to possess a greater understanding of farming activities compared to their urban counterparts [2], often due to the influence of their parents, who play a significant role in motivating and inspiring youth to participate in the agriculture sector.

3.3 Descriptive Statistics of the Benefits Gained during Fieldwork Courses

The responses on benefits gained during fieldwork courses are presented in Table 3. Out of the ten (10) items, seven (7) items were perceived to have high benefits. The items included the benefits in the form of teamwork and collaboration skills (μ=4.05), problem-solving skills (μ=3.99), hands-on learning (μ=4.08), exposure to diverse environments (different plant species, climates, and ecosystems) in fieldwork courses (μ=4.00), enhancing the skill development (μ=4.03), increasing the understanding of sustainability practices (μ=3.99) and exposure to experiential learning (μ=4.13). These findings were in line with some of the reported research. Previous study reported that the fieldwork courses facilitate the development of technical skills, particularly when led by staff, and enhance transferable skills such as problem-solving and critical thinking when students design their own investigations [15].

Table 3
Responses on Benefits Gained during Fieldwork Courses (n=111)

Item No.	Statements	Percentage (%)					μ	Std. Dev.	Decision
		SD	D	N	A	SA			
1	Students can build networking opportunities with professionals and experts in the industry	0.9	3.6	36.0	30.6	28.8	3.83	0.923	Low benefit
2	Fieldwork courses can increase the career readiness of students	0.0	0.9	36.0	31.5	31.5	3.94	0.845	Low benefit
3	Fieldwork courses able to develop teamwork and collaboration skills	0.0	1.8	27.0	36.0	35.1	4.05	0.835	High benefit
4	Fieldwork courses can build the confidence of the students	0.0	0.9	33.3	35.1	30.6	3.95	0.824	Low benefit
5	Students can develop problem-solving skills through fieldwork courses	0.0	0.9	30.6	36.9	31.5	3.99	0.815	High benefit
6	Fieldwork courses provide students with hands-on learning	0.0	1.8	22.5	41.4	34.2	4.08	0.799	High benefit
7	Students are exposed to diverse environments (different plant species, climates, and ecosystems) in fieldwork courses	0.0	0.9	27.9	41.4	29.7	4.00	0.786	High benefit
8	Fieldwork courses can enhance the skill development of the students	0.0	0.9	26.1	42.3	20.6	4.03	0.780	High benefit
9	Fieldwork courses can increase the understanding of sustainability practices among students	0.0	0.9	27.0	44.1	27.9	3.99	0.769	High benefit
10	**Fieldwork courses expose students to experiential learning**	**0.0**	**0.9**	**20.7**	**43.2**	**35.1**	**4.13**	**0.764**	**High benefit**

In a study conducted by Boyle *et al*., [2], the findings report positive changes in students in the affective domain, such as increased motivation, engagement, and reduced anxiety, because of fieldwork experiences. Therefore, the fieldwork courses are highly beneficial for students, offering a range of advantages from skill development to personal growth. In this study, the respondents agreed that fieldwork courses benefited most by exposing students to experiential learning (μ=4.13).

3.4 Descriptive Statistics on the Impact of Fieldwork Courses Towards Students' Learning Experiences and Academic Performance

Table 4 presents the students' responses on the impact of fieldwork courses. Among all statements, six (6) items were perceived as having a high impact on the student's learning experiences and academic performance, including enhancing understanding and application of plantation management (μ=3.58), fostering the critical thinking and analytical skills of the students (μ=3.48), increased the motivation and engagement of the students (μ=3.68), develop the personal growth and confidence of the students (μ=3.75), improved the communication and interpersonal skills of the students (μ=3.68), and develop the career readiness and professional development of the students (μ=3.68). Apart from that, the continuous exposure to challenges during fieldwork has a low impact on the engagement and motivation, confidence and self-efficiency, knowledge in plantation management, learning opportunities, and academic performance of the students. Previous findings showed that field courses can increase students' confidence, knowledge, leadership skills, and critical thinking. The fieldwork practice program significantly enhances the competencies, increases knowledge, and prepares students for the real workforce [16]. Additionally, fieldwork courses frequently involve teamwork and interaction, helping students develop essential communication and collaboration skills that are vital in any professional environment [15].

Table 4
Responses on The Impact of Fieldwork Courses on Students' Learning Experiences and Academic Performance (n=111)

Item No.	Statements	Percentage (%)					μ	Std. Dev.	Decision
		SD	D	N	A	SA			
1	Continuous exposure to challenges during fieldwork has decreased the engagement and motivation of the students	5.4	17.1	46.8	18.0	12.6	3.15	1.029	Low impact
2	Nonstop exposure to challenges has reduced the confidence and self-efficacy of the students	8.1	19.8	51.4	10.8	9.9	2.95	1.017	Low impact
3	Students became stressed and burned out due to the challenges during fieldwork activities	7.2	16.2	48.6	20.7	7.2	3.05	0.976	Low impact
4	Challenges in fieldwork courses have reduced learning opportunities for students	2.7	19.8	45.9	22.5	9.0	3.15	0.936	Low impact
5	Challenges during fieldwork courses have an impact on student's academic performance	8.1	15.3	52.3	19.8	4.5	2.97	0.929	Low impact
6	Fieldwork courses enhanced the understanding and application of plantation management	0.9	6.3	46.8	26.1	19.8	3.58	0.910	High impact
7	Engaging in fieldwork courses fosters the critical thinking and analytical skills of the students	1.8	6.3	49.5	27.0	15.3	3.48	0.893	High impact

8	Fieldwork courses increased the motivation and engagement of the students	0.9	5.4	38.7	35.1	19.8	3.68	0.886	High impact
9	**Fieldwork courses develop the personal growth and confidence of the students**	**0.9**	**3.6**	**36.9**	**36.9**	**21.6**	**3.75**	**0.868**	**High impact**
10	Exposure to fieldwork practices has improved the communication and interpersonal skills of the students	0.0	4.5	44.1	29.7	21.6	3.68	0.863	High impact
11	Student has limited knowledge of the application of plantation management	3.6	13.5	51.4	26.1	5.4	3.16	0.859	Low impact
12	Fieldwork courses develop the career readiness and professional development of the students	0.0	4.5	42.3	34.5	18.9	3.68	0.833	High impact

SA = Strongly Agree, A = Agree, N = Neutral, SD = Strongly Disagree, D = Disagree, μ = sample mean, Std. Dev. = standard deviation. Decision – weightage average = 40.28/12 = 3.357.

3.5 Correlation Analysis

Correlation measures both the strength and direction of the relationship between two variables. The strength of the correlation is indicated by the correlation coefficient, which quantifies how closely the relationship between the variables follows a straight line. Therefore, the results of the Pearson correlation are presented in Table 5. The table reveals that the Pearson correlation coefficient between these two variables is 0.432 and statistically significant at the 0.01 level. This indicates a moderate positive correlation between the variables. A positive correlation suggests that as the exposure to experiential learning through fieldwork courses increases, students' personal growth and confidence tend to increase as well, and vice versa. Field experiences play a crucial role in enhancing students' educational journey by providing them with ample opportunities to acquire new knowledge, develop meaningful connections with peers, foster a sense of self-assurance, and acquire valuable skills that are pertinent to their future careers [17]. This finding also confirms the conclusions drawn by Campbell *et al*., [18], who found that participants in their study strongly preferred specific elements of field trips, notably gaining new experiences and the chance to apply acquired knowledge. These experiences helped enhance participants' knowledge retention, fostering interest and confidence, increasing communication skills, and improving awareness of their surroundings. Field courses also generate great effective outcomes that can support student success. Previous research shows that participation in field courses can encourage positive shifts in students' science identity, sense of place, and self-efficacy [19].

Table 5
Correlation Analysis

Variable		Fieldwork courses expose students to experiential learning	Fieldwork courses develop the personal growth and confidence of the students'
Fieldwork courses expose students to experiential learning	Pears. Corr.	1	.432**
	Sig. (2-tailed)		<.001
	N	111	111
Fieldwork courses develop the personal growth and confidence of the students'	Pears. Corr.	.432**	1
	Sig. (2-tailed)	<.001	
	N	111	111

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

3.6 Regression Analysis

Simple regression analysis is a statistical tool used to quantify the relationship between a single independent variable and a single dependent variable to conclude whether fieldwork courses impact students' academic performance. The value of the B coefficient of regression analysis represents the degree to which extent the dependent variable is changed due to the changes of a certain independent variable while other independent variables are constant. Adjusted R2 is used to compensate for adding a variable to the model. A significant level (p-value) of the B (unstandardised) coefficient is used to test the hypothesis. Tables 6 and 7 show the Model Summary and Coefficient of Linear Regression results, respectively. Based on Table 6, the value of the R2 statistic is 0.187, which shows that fieldwork courses expose students to experiential learning has a 14.3% impact on the development of personal growth and confidence of the students. Adjusted R2 statistics indicated that the independent variable of fieldwork courses in the regression model accounts for 17.9% of the total variation in the student's personal growth and confidence.

Table 6
Model Summary

Model	R	R^2	Adjusted R^2	Std. error in the Estimate
1	.432[a]	.187	.179	.692

a. Predictors: (Constant), Fieldwork courses develop the personal growth and confidence of the students.

Table 7 explains variability in the dependent variable (personal growth and confidence) with a statistically significant F-value of 25.010 (p<.001). The predictors in the model, specifically "Fieldwork courses expose students to experiential learning" have a significant relationship with the dependent variable. The results indicate that fieldwork courses, specifically their exposure to experiential learning, have a statistically significant effect on students' personal growth and confidence, as indicated by the significant F-value and predictor coefficient.

Table 7
ANOVA Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.478	1	15.478	25.010	<.001[b]
	Residual	67.459	109	.619		
	Total	82.937	110			

a. Dependent Variable: Fieldwork courses develop the personal growth and confidence of the students.
b. Predictors: (Constant), Fieldwork courses expose students to experiential learning

According to Table 8, the unstandardised constant statistic is 1.722, which shows that when the predictor variable "Fieldwork courses expose students to experiential learning" is zero, the estimated value of the dependent variable "Fieldwork courses develop the personal growth and confidence of the students" is 1.722. The coefficient associated with the predictor variable is 0.491, indicating that for every one-unit increase in "Fieldwork courses expose students to experiential learning" the dependent variable is expected to increase by 0.491 units. Meanwhile, for "Fieldwork courses expose students to experiential learning" the standardised coefficient (Beta) is 0.432. This suggests that this predictor variable has a moderate effect on the dependent variable compared to other predictors in the model. Moreover, both the constant and the coefficient for "Fieldwork courses expose students to experiential learning" have t-values of 4.182 and 5.001, respectively, indicating that they are statistically significant (p<.001). Therefore, the hypothesis of the current study was accepted, and the

results indicate that the fieldwork courses expose students to experiential learning, which has a significant positive impact on their personal growth and confidence, as indicated by its significant coefficient and standardised coefficient.

Table 8
Regression Analysis Coefficient

Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.722	.412		4.182	<.001
	Fieldwork courses expose students to experiential learning	.491	.098	.432	5.001	<.001

1 (Constant) 1.722 .412 4.182 <.001
Fieldwork courses expose students to experiential learning .491 .098 .432 5.001 <.001

a. Dependent Variable: Fieldwork courses develop the personal growth and confidence of the students

4. Conclusion

The descriptive statistics showed that the respondents agreed that the fieldwork courses benefited most by exposing the students to experiential learning (μ=4.13) and having a high impact on the personal growth and confidence of the students (μ=3.75). A positive correlation suggests that as the exposure to experiential learning through fieldwork courses increases, students' personal growth and confidence tend to increase as well, and vice versa. The regression analysis indicates that fieldwork courses expose students to experiential learning, which has a 14.3% impact on the development of personal growth and confidence of the students. The analysis of variance (ANOVA) shows that exposure to experiential learning has a significant effect on students' personal growth and confidence (p-value <0.001). In conclusion, the hypothesis of the current study was accepted where the fieldwork courses expose students to experiential learning, which significantly positively impacts their personal growth and confidence.

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