



## Evaluation of the Effectiveness of the Process of Undergraduate Health and Physical Education Program by the CIPP Model

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**Abstract:** *This study aimed to evaluate the process (instruction, activities, and assessment methods) of undergraduate health and physical education (HPE) programs in different colleges of the Khyber Pakhtunkhwa province by employing the CIPP model. A quantitative research technique was used to record the students' responses about the effectiveness of the process through questionnaires. Respondents showed mixed views about different parameters of the process. Students were satisfied with the use of audiovisual aids during instruction, promotion of critical thinking, social and moral values by instruction methods, class discussion, participation of teachers and students in physical activities, and instructions before a specific activity. A significant proportion of the respondents, however, believed that teachers did not use diverse teaching strategies and effective mediums of instruction. Similarly, negative responses were observed about rehabilitation techniques, the role of mentorship in stimulating students' interest, and the regular arrangement of physical activities. Evaluation of the HPE program by the CIPP model identified some demerits in the process which need improvement to make the program more effective.*

**Key Words:** Instruction, Physical Activities, Medium of Instruction, Rehabilitation, Audiovisual Aids, Evaluation

### Introduction

Health and physical education (HPE) is a dynamic educational program that aims at delivering theoretical and practical backgrounds to students to maintain their health and social life and excel in prospective careers. The program has been offered by several colleges and universities in different countries, which helps the graduates to accomplish knowledge, skills, and a balanced lifestyle (Pearman III et al., 1997; Davis et al., 2000). The physical activities of students stimulated by health and physical education are major contributors to the improvement of

their physical and mental health and academic performance (Iqbal and Rashid, 2018). HPE is crucial for students to have balanced physical health and mental stability. It has an acknowledged role in academic achievement (Stevens et al., 2008), active social life (Tifrea et al., 2016), and career development (Richards and Padaruth, 2017). The significance of health-related physical education is apparent from the United Nations stance, which declared 2005 as the "international year of year of physical education and sports" (Bailey et al., 2009). Health and physical education at the Bachelor

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of Studies (BS) level was initiated in the public sector colleges of Khyber Pakhtunkhwa a decade ago, which has now been extended to ten colleges (Higher Education Department, Government of Khyber Pakhtunkhwa).

One of the prerequisites for an effective educational program is the mechanism of the process, i.e., assessment, instruction methods, supervision, opportunities, and involvement of students in practical activities. An effective mechanism of the process enhances the efficacy of the educational program and students' interest in learning. The process mechanism in HPE program include a diverse range of instructional strategies, sport and physical activities, mentorship, laboratory experiments, student assessment, etc. to determine the strengths of the process mechanics, evaluation is necessary. The Stufflebeams model – popularly known as the CIPP evaluative model – is one of the important tools which considers objectives, needs, environment, resources, mechanism of the process, and outcomes while evaluating an educational program ([Stufflebeam, 2000](#); [Stufflebeam, 2004](#); [Iqbal et al., 2021](#)). [Zhang et al. \(2011\)](#) stated that evaluation of a program is necessary to receive feedback about the shortcoming and strengths of that program which helps the program s designers to resolve the identified shortcomings. [Obate-Yap and Reston \(2016\)](#) evaluated bachelor of studies in Physics at San Carlos University for different indicators of the CIPP model, and they reported that in the process domain, teachers used traditional methods of instruction. The efficacy of other programs such as teaching research, nursing programs, accounting education program, and entrepreneurship education programs at the bachelor level have been evaluated in previous studies ([Barrett et al., 1996](#); [Ma et al., 2009](#); [Omane-Adjekum, 2016](#); [Griebler and Haunschmied, 2018](#)) however, in literature review studies on evaluating the HPE at BS level are rare. Keeping in view the importance of the HPE program, monitoring the process and implementation phases of the program is important because it will highlight whether the program fulfils the needs of students. Therefore, this study was aimed at exploring

students' views about the process phase of the HPE program based on the CIPP model.

## Methodology

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The method used in this study was a quantitative technique in which questionnaires were used to evaluate the process implementation of the HPE program based on the CIPP model. Different colleges in the Khyber Pakhtunkhwa province where the HPE program at a four-year bachelor level is offered were included in the study. The population of the selected colleges was the enrolled students in the BS HPE program. Applying the sampling technique reported by Kerjicie and Morgan (1970), a probability sample of 494 students was drawn as respondents. A questionnaire was designed which was self-explanatory, covering items related to the process, e.g., teaching methods and strategies, arrangement of physical activities, monitoring and supervision of students during physical activities, the influence of teachers in promoting moral, social, and Islamic values, and development of critical thinking of students. The questionnaire was designed on a Likert scale which used five responses against each statement given, i.e. strongly agree (SA), Agree (A), undecided (UD), strongly disagree (SD), and disagree (DA) as used by previous researchers ([Rooholamini et al., 2017](#); [Ranjbar and Rahimi, 2021](#); [Tuna and Badal, 2021](#)). Twelve items related to the process of the HPE program were provided in the questionnaires for students' responses. A pilot study conducted at Qurtuba University and experts' opinions confirmed the appropriateness of the questionnaires. The validity and reliability of the data collecting tools were checked as per the methods reported by [Mohajan \(2017\)](#). Students' responses about the process of HPE were recorded and subjected to chi-square and likelihood ratio tests using the latest version of SPSS software.

## Findings of the Study

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Findings revealed that students' responses about the execution of the process of the HPE program at studied colleges were in favour of most of the items. However, respondents

showed their dissatisfaction with some of the asked statements. Regarding the use of audiovisual aids during the instruction process, maximum respondents (274 out 494) were in favour, and they showed their satisfaction. Only 32 respondents disagreed with the statement. Overall the items were ranked as satisfactory. An insignificant association between students' responses and the given

statement was recorded as the chi-square value was 0.310, which was greater than 0.05 ( $P > 0.05$ ), but the likelihood odd ratio was observed as 1.518 with a 95% confidence interval (0.859, 2.681) which indicated that the number of respondents who agreed with the given statement was 1.5 times greater than disagreeing respondents (Table 1).

**Table 1.** Students view the use of Audiovisual Aids during the Lecture

Teachers deliver their lectures with audiovisual aids (multimedia, projectors, charts etc.).								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total		Value	Df	Asymp. Sig. (2-sided)	
SA	140	61	201	Pearson Chi-Square	4.790 <sup>a</sup>	4	.310	
Agree	134	37	171					
Undecided	59	17	76	Likelihood Ratio	4.798	4	.309	
Disagree	26	12	38					
Strongly Disagree	6	2	8	Linear-by-Linear Association	.578	1	.447	
Total	365	129	494					N of Valid Cases

Data presented in Table 2 shows that the maximum number of respondents disagreed with the given statement that teachers used different strategies while delivering lectures. 49.79% of respondents (246 of 494) were not satisfied with the teaching strategies of teachers, while only 35 respondents (7%)

agreed with the statement. The chi-square test revealed significant differences between students' perceptions as the chi-square value was 0.000, which was less than .05 ( $P < 0.05$ ). The data revealed that teaching strategies employed by teachers while delivering lectures were ineffective from the student's viewpoint.

**Table 2.** Respondents' views about the use of different Teaching Strategies

Teachers use different teaching methods while delivering their lectures								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total		Value	Df	Asymp. Sig. (2-sided)	
SA	0	22	22	Pearson Chi-Square	85.248 <sup>a</sup>	4	.000	
Agree	35	0	35					
Undecided	69	8	77	Likelihood Ratio	92.892	4	.000	
Disagree	115	40	155					
Strongly Disagree	146	59	205	Linear-by-Linear Association	1.391	1	.238	
Total	365	129	494					N of Valid Cases

About the statement that teaching strategies used by teachers develop critical thinking among students, 195 (39.49%) students were in favour of the statement, while 140 (28.34%) disagreed. Pearson Chi-Square test was .000, which was less than 0.05 ( $P < 0.05$ )

indicating that the test was significant. The odd ratio test indicated that the process is efficient and teaching strategies effectively developed critical thinking among students of the BS HPE program (Table 3).

**Table 3.** Students' Perceptions about the role of Teaching Strategies in Developing Critical Thinking

Teaching strategies used by teachers develop critical thinking among students. The direction of the execution of the process is excellent.								
				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	90	29	119	Pearson	Chi-	30.701 <sup>a</sup>	4	.000
Agree	105	9	114	Square				
Undecided	30	19	49	Likelihood	Ratio	35.137	4	.000
Disagree	107	54	161	Linear-by-Linear				
Strongly	33	18	51	Association		11.779	1	.001
Disagree								
Total	365	129	494	N of Valid Cases		494		

Positive perceptions of the students were observed about the role of teachers in promoting moral and social values among students. 199 ( 40.47 % ) respondents agreed and showed satisfaction with the process, while 117 (23.68%) students disagreed with the given statement. The P-value for the chi-square test was .028, which was less than 0.05 ( $P < 0.05$ )

thus the test was significant. The odd ratio value revealed that the number of respondents agreeing with the statement was more than disagreeing with students, indicating that teachers engaged in the HPE program promoted moral and social values among students and thus, the process was effective (Table 4).

**Table 4.** Students' Responses about the Role of Teachers in Promoting Moral and Social Values of HPE Students

Teachers promote moral and social values among students								
				Chi-Square Tests				
The direction of the execution of the process is excellent.								
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	103	48	151	Pearson	Chi-	10.837 <sup>a</sup>	4	.028
Agree	96	27	123	Square				
Undecided	49	14	63	Likelihood	Ratio	10.525	4	.032
Disagree	92	23	115	Linear-by-Linear				
Strongly	25	17	42	Association		.278	1	.598
Disagree								
Total	365	129	494	N of Valid Cases		494		

Table 5 reflects the respondents' viewpoint about the item "course content is followed by teachers in sequence". Recorded responses showed that 203 (41.47%) students agreed that teachers properly followed the course content in sequence, while 140 (28.34%) students disagreed with the statement. It was evident that from the chi-square value of 0.000

which was less than 0.05 ( $P < 0.05$ ), the test was significant. Odd ratio analysis revealed the number of respondents in favour of the statement was greater than those who disagreed, thus indicating that teachers properly followed the course contents of the HPE subject in sequence.

**Table 5.** Students' Responses to the Teaching of Sequential Course Content

The course contents are followed by teachers in sequence								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	98	29	119	Pearson Chi-Square		30.701 <sup>a</sup>	4	.000
Agree	105	9	114					
Undecided	30	19	49	Likelihood Ratio		135.137	4	.000
Disagree	107	54	161					
Strongly Disagree	33	18	51	Linear-by-Linear Association		11.779	1	.001
Total	365	129	494					
				N of Valid Cases		494		

According to collected data, 199 (40.47 %) of the respondents expressed their positive perception regarding encouraging students' participation in class discussion. 92 (18.62%) respondents disagreed, and they believed that class discussion was discouraged by the teachers. Analysis of data revealed that P-value for the chi-square test was .000, which is less than 0.05 ( $P < 0.05$ ). Hence the test was significant. The odd ratio value indicated that the direction of the execution of the process in terms of engagement of students in the class discussion was effective (Table 6).

**Table 6.** The viewpoint of Students about Students' Involvement in Class Discussion

Class discussions among students are encouraged by teachers.								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	83	72	155	Pearson Chi-Square		62.510 <sup>a</sup>	4	.000
Agree	136	45	181					
Undecided	52	6	58	Likelihood Ratio		68.301	4	.000
Disagree	73	3	76					
Strongly Disagree	21	3	24	Linear-by-Linear Association		52.315	1	.000
Total	365	129	494					
				N of Valid Cases		494		

Data presented in Table 7 shows the students' perceptions about the arrangement of sports and physical activities at regular intervals in colleges. Almost equal responses were received from students in agreement and disagreement with a slight difference. It was observed that 173 (35.10 %) of the students were in favour of the statement, while 171 (35.01 %) of the

respondents did not agree. The chi-square test value was recorded as 0.567, which is greater than 0.05 ( $P > .05$ ). Thus the test was not significant. Based on the greater number of responses and odd ratio value, it was revealed that sports events and physical activities were regularly arranged in colleges.

**Table 7.** Students' views about the Arrangement of Sports and Physical Activities at Regular Intervals at Colleges

Sports and Physical activities are regularly arranged at the college.								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	53	16	69	Pearson Chi-Square		2.943 <sup>a</sup>	4	.567
Agree	120	45	165					
Undecided	20	3	23	Likelihood Ratio		3.258	4	.516
Ty8utyD isagree	77	27	104	Linear-by-Linear Association		.392	1	.531
Strongly Disagree	94	38	132					
Total	364	129	493	N of Valid Cases		493		

The promotion of students' interest in physical activities through supervision was perceived negatively. Data presented in Table 8 showed that 191 (38.66%) of the students disagreed with the statement and they responded negatively to the statement, while 123 (24.89%) of the students believed that supervision of physical activities promoted students' interest.

The P-value for the chi-square test was .000, which is less than 0.05 (  $P < .05$  ), which indicated that the test was significant. On the basis of the greater number of responses in disagreement, it was revealed that supervision did not promote students' interest in physical activities.

**Table 8.** Students' Responses Regarding the Promotion of Students' Interest Through Supervision during Physical Activities

Supervision of students during physical activities promotes students' interest in the activity.								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	33	41	74	Pearson Chi-Square		42.490 <sup>a</sup>	4	.000
Agree	90	30	120					
Undecided	51	14	65	Likelihood Ratio		38.915	4	.000
Disagree	141	27	168	Linear-by-Linear Association		21.827	1	.000
Strongly Disagree	50	17	67					
Total	365	129	494	N of Valid Cases		494		

Students' views about the statement that "Instructions are given to students before beginning a specific activity" reflected their positive perceptions. Data in Table 9 indicated that 283 (57.28%) of the students showed their satisfaction and agreed with the

statement, while 24 ( 4.85% ) of the respondents were not in favour of the item asked in the questionnaire. The P-value for the chi-square test is .000, which is less than 0.05 ( $P < .05$ ), which means the test is significant. From the responses, it was revealed that

teachers properly instructed students before the commencement of a specific physical activity. Thus the process was perceived as efficient by the students.

**Table 9.** Students' views about Prior Instruction before the beginning of a Specific Physical Activity

Instructions are given to students before beginning a specific activity.									
The direction of the execution of the process is excellent.				Chi-Square Tests					
	Agree	Disagree	Total			Value	Df	Asymp. sided)	Sig. (2-
SA	115	72	187	Pearson	Chi-	35.936 <sup>a</sup>	3	.000	
Agree	168	53	221						
Undecided	58	3	61	Likelihood	Ratio	42.282	3	.000	
Disagree	24	1	25						
Strongly Disagree				Linear-by-Linear	Association	34.197	1	.000	
Total	365	129	494	N of Valid Cases		494			

Data revealed that 264 (54.42 %) of the students responded that participation of students and teachers was mandatory during physical activities, as depicted in Table 10. However, only 33 (6.68%) of the students disagreed about the participation of students and teachers in physical activities. The P-value for the chi-square test is .165, which is greater

than 0.05 ( $P > .05$ ), which shows that the test was not significant. In general, it was observed from the students' viewpoints that students and teachers participated in physical activities, which reflected the efficiency of the direction of the execution of the process of the BS HPE program.

**Table 10.** Students' Responses about the Participation of Students and Teachers in Physical Activities

During sports and physical activities, participation of teachers and students is mandatory.									
The direction of the execution of the process is excellent.				Chi-Square Tests					
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-	Sig. (2-
SA	132	63	195	Pearson	Chi-	6.491 <sup>a</sup>	4	.165	
Agree	132	38	170						
Undecided	68	19	87	Likelihood	Ratio	6.420	4	.170	
Disagree	27	7	34						
Strongly Disagree	6	2	8	Linear-by-Linear	Association	4.152	1	.042	
Total	365	129	494	N of Valid Cases		494			

Table 11 presents data about students' views regarding the statement "taught how to rehabilitate special injured persons". It was observed that students' perceptions of the given statement were negative, and they believed that no mechanism was provided to them for

the rehabilitation of injured persons. It is evident from the table that 175 (35.42 %) of the respondents disagreed, which highlighted that instructions were not given to students about the rehabilitation mechanism for injured persons. On the other hand, 123 (24.89%)

were in favour of the given statement, whose number was significantly lower as the P-value for the chi-square test was .000, which is less

than 0.05 (  $P < .05$  ). It revealed that students were not taught how to rehabilitate the injured persons.

**Table 11.** Students' Viewpoints about Rehabilitation of Injured Persons

Students are taught how to rehabilitate special injured persons.								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	55	42	97	Pearson Chi-Square		36.134 <sup>a</sup>	4	.000
Agree	68	29	97					
Undecided	67	2	69	Likelihood Ratio		43.220	4	.000
Disagree	84	31	115	Linear-by-Linear Association		10.631	1	.001
Strongly Disagree	91	25	116					
Total	365	129	494	N of Valid Cases		494		

Table 12 reflects students' perceptions about the appropriateness of the medium of instruction. Data revealed that 169 (35.89%) of the students showed their dissatisfaction with the medium of instruction teachers used in their lectures. Only 86 (17.40%) of the respondents agreed with the given statement.

The P-value for the chi-square test was recorded as .000, which is less than 0.05 ( $P < .05$ ), indicating that the test was significant. On the basis of students' views, it is revealed that the medium of instruction adapted for delivering lectures by the HPE teachers is not satisfactory.

**Table 12.** Students' Responses Regarding the Medium of Instruction

Students are satisfied with the medium of instruction used by teachers.								
The direction of the execution of the process is excellent.				Chi-Square Tests				
	Agree	Disagree	Total			Value	Df	Asymp. Sig. (2-sided)
SA	33	18	51	Pearson Chi-Square		51.431 <sup>a</sup>	4	.000
Agree	53	54	107					
Undecided	110	27	137	Likelihood Ratio		49.340	4	.000
Disagree	100	21	121	Linear-by-Linear Association		33.285	1	.000
Strongly Disagree	69	9	78					
Total	365	129	494	N of Valid Cases		494		

## Discussion

The primary purpose of the process evaluation is to monitor whether a program's designed plans are properly implemented and to what extent the program is using the resources efficiently, thereby providing feedback to the

stakeholders ([Stufflebeam and Shinkfield, 2012](#)). This study aimed to apply the CIPP model for evaluating the process –one of the important areas of the HPE program. The findings demonstrate that HPE teachers in colleges properly use audiovisual aids during

instruction, encourage class discussion, develop critical thinking, and social and moral values by instruction, collaborate with students during physical activities, and give instructions to students before the intervention of a specific activity. These indicators reflect the capacity of colleges and faculty members to make the HPE program efficient. Students' perceptions about the mechanism of the process related to the HPE program were almost positive except for instruction strategies, medium of instruction, supervision issues, guidelines about rehabilitation techniques in case of trauma, and interventions of regular physical activities. The results of the study conducted by [Amaewhule and Wechie \(2021\)](#) conform to the findings of this study. The authors observed that respondents' views were positive about most of the aspects of the undergraduate economic degree program except for some indicators which they recommended for improvement. A study conducted by [Alimohammadi et al. \(2013\)](#) to check the effectiveness of a health program using by CIPP model also supported the results of this study because they observed that the respondents were of the view that improvement in the process of the program was required. The study, however, shows a divergence from the reports of [Hasanah et al. \(2021\)](#), which demonstrated that the respondents were 100% satisfied with the implementation process of an online professional development program.

[Darma \(2019\)](#) debated that the process (implementation), which includes teaching methods, medium of instruction, materials related to teaching, and assessment has an important role in reshaping the educational system and quality of an education program. An ineffective process may lead to gaps in the quality of the program, which will affect the learning potential of students. For instance, insufficient study material, outdated teaching strategies, medium of instruction, and improper assessment methods of an educational program will distract students' interest in the teaching-learning process. Thus the objectives of the program will not be achieved in the way they were desired. The HPE program encompasses both theoretical

and practical modules. For effective delivery of the theoretical knowledge, the provision of relevant and most updated study material to students is significantly necessary. Similarly, employing different pedagogical approaches and teaching strategies during instruction enhances the student's ability to take an interest in lessons and grasp sufficient knowledge. [Donche et al. \(2013\)](#) stated that applying different teaching strategies enhances students' motivation and academic performance. [Gibbons and Ebbeck \(1997\)](#) and [Giridharan and Raju \(2016\)](#) have also demonstrated that the use of different strategies such as team-based instruction and demonstration methods significantly improved the learning process and the quality of educational programs.

## Conclusion and Recommendations

Based on responses received from students about the execution of the process of HPE in colleges, it was concluded that students were satisfied with most of the items related to the process and implementation of HPE programs e.g., the use of audiovisual aids during instruction, promotion of critical thinking, social and moral values by instruction methods, class discussion, participation of teachers and students in physical activities, and instructions before a specific activity. However, negative responses were recorded about the use of diverse teaching strategies, effective medium of instruction, the teaching of rehabilitation techniques, the role of mentorship in stimulating students' interest, and the regular arrangement of physical activities. It is recommended that teachers should adopt different teaching strategies for motivating their students. A comprehensive and concise medium of instruction should be followed during instruction. Stakeholders should integrate courses related to the rehabilitation of injured persons. During supervision, teachers should use attractive techniques to promote students' interest in physical activities. Keeping in view the practical components of the BS HPE program, teachers should arrange sports and physical activities at regular intervals in colleges.

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