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COMPREHENSIVE ASSESSMENT MODULE FOR FIRST AID IN PHYSICAL AND HEALTH EDUCATION

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Abstract
Purpose. The purpose of this study was to identify students' learning achievement based on cognitive, psychomotor and affective domain through the Comprehensive Assessment Module (CAM) on first aid in Physical and Health Education subject.
Methods. A pre-experimental – one shot case studies design was conducted in eight secondary schools in the district of Larut, Matang and Selama in Perak. The sample consisted of 15 teachers and 447 of Form 2 students who attended the Physical and Health Education class.
Results. The CAM instrument reliability was used to gauge the cognitive domain (r=.76), psychomotor domain (r=.92) and affective domain (r=.77). Questionnaires regarding the usage of CAM on first aids (r=.92) was also used in this study. Inter observer agreement among researcher was 70.96±0.83. Results showed that students' cognitive learning achievement on first aids was good (6.89±68.90%)). The highest achievement of psychomotor learning during teaching session was at developed precision level (438±3.14), and during simulation session was at articulation level (443±4.02). The affective learning achievement was at organization level (443±4.17). The results showed that 90.53% teachers agreed that the use of CAM is to improve students' achievement, 88% agreed that the instrument is to facilitate teaching process, 95.94% agreed that the assessment is to achieve the objectives of teaching, 79.46% agreed that the assessment is compatible with the module assessment and 58.67% agreed that the CAM can be easily implemented.
Conclusions. The study concluded that the CAM is suitable as a standard tool for assessing students' achievement on handball and first aid for the Form 2 Physical and Health Education subject.
Key words. Comprehensive Assessment Module, Physical and Health Education.

Introduction

Physical and Health Education subject serves as a core subject and according to the circular 25/1998 issued by the Ministry of Education Malaysia (1998). Physical and Health Education subject plays a vital role towards developing individual potential through integrated learning experiences. (P.W. Darst, R.P. Pangrazi, 2006; Freeman, 2001; V.P. Daeur, R.P. Pangrazi, 1995).

A well-planned Health Education Curriculum paired with an environment which is conducive for learning will enhance teaching and learning process in order to develop individual self-potential to the utmost level. The environmental cleanliness and safety core involves three topic namely safety, infectious diseases and first aid. Topic for the first aid in Form 2 Health Education syllabus covers The First Aid and TOTAPS Principles and Procedures.

The ratio to determine the grade for Physical Education is 3 : 1, in which the psychomotor domain covers the largest part of the components of assessment; three times

higher as compared to the other two domains. However, schools today relay 100 percent on the cognitive domain in making assessment through the mid-year and final year examination.

The current assessment method is therefore not a holistic and absolute one as there is no such standardized instrument used to assess students' performance in the subject especially on the aptitude of games. The CAM was carried out in order to identify students' learning performances during the lessons. This research suggests that the CAM should cover the three domains of cognitive, psychomotor and affective on The First Aid in Physical and Health Education subject.

Methodology

This study was carried out in secondary schools located in the district of Larut Matang and Selama in Perak state. The sample population consisted of 15 Physical and Health Education teachers and 443 form two students who undergo the First Aid lesson during their Physical and Health Education class. The choice of subjects among teachers was made based on *purposive sampling*,

The research instrument involved assessment in the form of a rubric scoring based on the level of learning for cognitive domain (*r*=.76), psychomotor domain (*r*=.92) and affective domain (*r*=.77). Questionnaires on teachers' perceptions towards the application of CAM in the first aid lesson (*r*=.82). The percentage for interobserver agreement among teachers on first aid 70.96% (SD=0.83) was also taken into account in this study.

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Tanle 1. Scales for the Cognitive Assessment Level on First Aid

Scales	Level
80 and above	Excellent
60 to 79	Good
40 to 59	Moderate
20 to 39	Weak
19 and below	Very Weak

The psychomotor learning assessment on First Aid was carried out by teachers based on instructional and simulation sessions during first aid teaching and learning process under TOTAPS procedures; *Talk* (*T*), *Observe*

Table 2. Rubric Scoring for Psychomotor Assessment on First Aid

l Scale	Assessement Criteria
5 Naturalization	Unconscious mastery and related basic skills Adapt and integrate basic skill Develop precision basic skill Manipulation basic skill Imitation basic skill
4 Articulation	Adapt and integrate basic skill Develop precision basic skill Manipulation basic skill Imitation basic skill
3 Develop Precision	Develop precision basic skill Manipulation basic skill Imitation basic skill
2 Manipulation	Manipulation basic skill Imitation basic skill
1 Imitation	Imitation basic skill

The cognitive learning assessment on first aid consisted of 10 questions with the questions specification table is based on the B.S. Bloom's Taxonomy (1956), four questions on knowledge level (40%), one question on comprehension level (10%), two questions on application level (20%), one question on analysis level (10%), one question on synthesis level (10%) and one question on evaluation level (10%).This assessment was carried out based on the B.S. Bloom's (1956) Taxonomy through written test using the score of cognitive achievement scales as presented in **Table 1.**

Assessment on affective learning for the value of cooperation consisted of two sub-values, namely helping each other and toleration. Based on Krathwohl et al.'s. (*O*), *Touch* (*T*), *Active* (*A*), *Passive* (*P*) and *Skill (S*). This assessment was based on Dave's Taxonomy (1970) through teachers' observations with reference to the level of scales with rubric scoring as presented in **TABLE 2.**

Table 3. Scoring Rubric for Affective Assessment on First Aid

Level Scale	Assessment Criteria
5 Characterize	Adopt value system Organize value system Attach values Participate with value Receive value
4	Organize value system

Organize	Attach values Participate with value Receive value
3 Value	Attach values Participate with value Receive value
2 Respond	Participate with value Receive value
1 Receive	Receive value

The psychomotor assessment on the other hand was divided into two sessions; during teaching and simulation sessions while affective assessment was carried out throughout teaching process. A set of questionnaires on teacher's perception on the application of CAM on first aid was given to 15 Physical and health Education teachers upon completing the whole instructional process on the first aid techniques.

Findings and discussion

From **TABLE 4**, it can be seen that the total achievement level on cognitive domain is good (*M*=6.89, 68.90%), while students' competency level for questions on comprehension level (*M*=0.85, *85.00%*), analysis level (*M*=0.91, *91.00%*) and synthesis level (*M*=0.81, *81.00%*) *M*=0.91, *91.00%*) and synthesis level (*M*=0.81, *81.00%*) are excellent. Score for questions on evaluation level (*M*=0.34, *34.00%*) however suggests a weak achievement. According to B.S. Bloom (1956), to reinforce students' cognitive level in certain skill-based learning, the process should cover students' competency in six different levels following the hierarchy. Other cognitive psychologists like J. Piaget (1972), J. Bruner (1966), shared the same point of view on the importance of variable cognitive structure and process in creating meaningful learning experience in the classroom. The researcher has found that students' overall achievement in every cognitive level in first aid cognitive test involving comprehension, analysis. and synthesis level is excellent. Students' evaluation level is found to be low.

taxonomy (1964), teacher's observation is used with reference to the scoring rubric as presented in **TABLE 3.**

From **TABLE 5**, it can be seen that the total achievement level on psychomotor aspect. The psychomotor learning assessment on first aid during instruction is evaluated based on three levels namely imitation, manipulation and behavioral accuracy. Based on TABLE 5, it is evident that the overall students' achievement during instructional process is at manipulation level (*M*=2.24, *SD*=0.55). Psychomotor learning assessment on first aid during simulation session is carried out based on the five levels namely imitation, manipulation, behavioral accuracy, association and natural responses. Students' achievement during simulation session is at behavioral accuracy level (*M*=3.43, *SD*=0.90). Students' highest achievement during instructional process is at behavioral accuracy level (*n*=295, 67.40%) while the highest achievement during simulation session is at association level (*n*=205, 46.30%). Research findings have shown that students are able to master the behavioral accuracy level during instructional session on *Talk* (*n*=336, 76.40%), *Observe* (*n*=302, 68.50%), *Touch* (*n*=327, 74.50%), *Active* (*n*=282, 64.10%), *Passive* (*n*=263, 59.50%) and Skill (*n*=251, 56.80%), while the number of students mastering the natural responses level during the simulation process is as follow; *Talk* (*n*=80, 18.10%), *Observe* (*n*=68, 15.30%), *Touch* (*n*=66, 14.90%), *Active* (*n*=42, 9.50%), *Passive* (*n*=29, 6.50%) and Skill (*n*=42, 9.50%).

Through CAM, Students showed excellent achievement including psychomotor aspect during first aid lesson – TOTAPS knowledge. In general, the researcher found that students did not have difficulty in performing TOTAPS' first aid techniques. The result of the study has confirmed that students who have undergone the teaching and learning process are able to understand and perform the task well. B.S. Bloom (1956) agrees that the psychomotor skill is very much associated with the learning outcomes, which achievement is obtained through manipulation aspect involving physical activities. Adding to that, states that any subjects which involve the psychomotor aspect are very much coordination -oriented and the emphasis therefore is put on physical responses. The current research findings also have confirmed students' skill competency level in performing first aid as instructed by teacher.

The psychomotor assessment on first aid for TOTAPS during simulation session is generally at the behavioral accuracy level. This situation might be caused by the feeling of anxiety among students during the simulation session as the assessment process was carried out at the same time. There are many stages students must undergo in order to perform the psychomotor skills. This condition is explained, the psychomotor skills involve six levels; responsive movement, basic movement, integrated movement, physical behaviour, movement efficiency, and clarification of movement. This is also supported by F. Buttler (1972) who explains that psychomotor learning outcomes can be divided into three categories namely *specific responding, motor chaining and rule using*. At specific responding level students are able to produce

responses to physical activities. In motor chaining level, students are able to integrate more than two basic skills into one. At rule using level, students are able to apply their knowledge in order to perform complex skills.

Table 4. Achievement Level in Cognitive Assessment on First Aid N=437

Level of Achievement	*N*			%
Excellent	119			27.20
Good	273			62.50
Moderate	37			8.50
Weak	8			1.80
Total	437			100.00
Level of questions	*M*	*SD*	% Score	Level of Achievement
Knowledge (4 questions)	2.91	0.53	72.75	Good
Comprehension (1 question)	0.85	0.36	85.00	Excellent
Application (2 questions)	1.07	0.63	63.50	Good
Analysis (2 questions)	0.91	0.29	91.00	Excellent
Synthesis (1 question)	0.81	0.39	81.00	Excellent
Evaluation (1 question)	0.34	0.47	34.00	Weak
Total (10questions)	6.89	1.28	68.90	Good

Table 5: Students' Psychomotor Achievement in First Aid Skill – TOTAPS

Session	Level	*N*	%
Instructional Session	Association	295	67.40
	Manipulation	137	31.20
	Imitation	6	1.40
	Total	*N*=438, *M*=2.68, *SD*=0.48	
Simulation Session	Natural responses	44	9.90
	Association	205	46.30
	Accuracy	91	20.50
	Manipulation	102	23.00
	Imitation	1	0.20
	Total	*N*=443, *M*=3.43, *SD*=0.96	

Based on **TABLE 6**, the overall achievement in affective assessment is at characterize level (*M*=4.77, *SD*=0.46) while the highest score is at character building (*n=350, 79.00%*). Analysis on the value of toleration based on gender reveals that the female students (*n*=88, 19.90%) scores higher than the male students (*n*=69, 15.60%) in character building. For character building on the sub value of helping each other, female students (*n*=84, 19.00%) scores higher than male students (*n*=64, 14.40%). The overall findings on the affective achievement in TOTAPS first aid skill are excellent. Based on the CAM assessment on students' level of affective achievement in TOTAPS first aid test, result has shown that majority of the students have achieved the highest level of affective aspect which is character building.

Table 6. Level of Achievement for Affective Learning Assessment on First Aid

Level	*N*	%
Characterize	350	79.00
Organize	85	19.20
Value	8	1.80
Respond	-	-
Receive	-	-
Total	*N*=443, *M*=4.77, *SD*=0.46	

Result analysis in **table 7** has indicated that 90.53% of the teachers agreed on the use of CAM in order to improve students' performances, that students became more motivated, and therefore had put more effort to bring out the best and students' participation was found to be very encouraging for the item of improving students' performances. Research finding also reveals that 88.00% of teachers agreed that the use of CAM facilitates teachers in carrying out assessment on students.

95.94% of teachers agreed that the use of CAM helps to achieve the aims and objectives of the physical and health education subject, marking criteria is made easier, clearer and suitable, and submit to learning outcomes for the item of achieving learning objectives. Moreover, 79.46% of teachers agreed that the use of CAM facilitates students' assessment process, is user friendly and not time-consuming and the rubric scoring goes well with the assessment scoring system and procedures which is simple to follow for the item of assessment module specification. Last but not least, 58.67% of the teachers agreed that the assessments on cognitive, affective and psychomotor are easier to carry out, aspects of assessment are found to be appropriate and instructional period does not constrain assessment process for the item of module management.

However, there are studies which have revealed that students favor teaching strategy which emphasizes on affective learning outcomes (J.H. McTeer, F.L. Blanton, 1978). According to T.L. Thompson, J.J. Mintz (2000), teachers who reject affective learning outcomes will diminish students' motivation level especially in skill-based learning. The instructional process for physical and health education subject should therefore emphasize on the affective assessment as the learning outcomes.

The researcher has also analyzed teachers' perceptions on the use of CAM instrument on five elements namely the application of module on students' achievement, teachers' instructional management, learning objectives achievement, module specification and its management aspect through a survey on teachers' perceptions on the use of first aid CAM. The results are as presented in table 7 below.

Owing to that, assessment will provide a systematic way to evaluate thinking and making inference skills and is able to assess outcomes which cannot be measured through objective and normal essay writing tests. CAM therefore can help teachers to evaluate students' performances and identify weaknesses, and is able to justify students' competency in performing certain skills or activities. It is also aligned with the learning theory advocating the use of open assessment which serves as the basis to learning enhancement. On top of that, the observation method is found to be in line with method suggested by J.L. Lund M.F. Kirk (2002) and M.J. Feuer K.L. Fulton (1993) and agrees with, B.S. Mohnsen (2003) and C.J. Marsh G. Willis (2007) in which assessment technique used is able to foresee the extent to which a teaching and learning process has succeeded.

The CAM specifications are based on performance, longer span of attention, complex skills, application of specific strategy, problem solving, individual-based and the freedom to choose (E.L. Baker et al., 1993). They are also based on standard (R.J. Marzano et al., 1993). The content of the assessment items of CAM is in line with the aims and objectives of form two physical and health education syllabus. The marking criteria are also straightforward and conform to the Bloom's Taxonomy (1956) according to the domains, R.H. Dave's Taxonomy (1970) and D.R. Krathwohl's Taxonomy (1964).

The rubric scales used in this study can be a reference in making an assessment based on skills and checklist to explain the performance at every level and as a guideline or format to be emulated. The design of the rubric scales encompasses specifications as highlighted by W.J. Popham (1997) namely selection criterion, ample justification and marking strategy and specific elaboration on what to be measured (E.S. Quellmalz, 1991). The CAM is therefore found to be user friendly, able to make things simpler for teachers with procedures which are easy to perform.

Table 7. teachers' perceptions on the use of CAM

Item		Agreement Scale		
	f	Agree	Fairly Agree	Disagree
To improve students' performances	74	67 90.53%	7 9.46%	-
To facilitate teachers' instructional management	75	66 88.00%	3 4.00%	6 8.00%
To achieve learning objectives	74	71 95.94%	2 2.70%	1 1.35%
Conform to the specification of assessment module	73	58 79.46%	11 15.09%	2 2.74%
Assessment is easy to carry out	75	44 58.67%	17 22.67%	14 18.67%

Conclusion

Based on the research findings, the CAM instrument is suitable to be utilized by teachers as a standard measurement tool to assess students' learning performances on the first aid topic in physical and health education subject. The use of CAM is more realistic, holistic and able to assess the overall student's performances on the cognitive, affective and psychomotor domains as required by the National Education Philosophy. The CAM also agrees with the school-based assessment and its implementation has verified the '*power of knowledge*' and would bring back the '*status quo*' of the physical and health education subject in schools all over the country.

References

BAKER, E.L., O'NEIL, H.E. JR., LINN, R.L., 1993, *Policy and validity prospescts for performance-base assessment*. American Psychologist, 48, 1210-1218.

BLOOM, B.S., ENGELHART, M.D., FURST, E.J., HILL, W.H., KRATHWOHL, D.R., 1956, *Taxonomy of educational objectives the classification of educational goals handbook I: cognitive domain.* New York: David McKay Company, Inc.

BRUNER, J., 1966, *Studies in cognitive growth:A collaboration at the Center for Cognitive Studies*. New York: Wiley & Sons.

BUTLER, F., COIT., 1972, *Instructional SystemsDevelopment for Vocational and Technical Training* Englewood Cliffs, New Jersey: Educational Technology Publications.

DARST, P.W., PANGRAZI, R.P., 2006, *DynamicPhysical Education for Secondary School Student 5th ed*. Massachusetts:Allyn & Bacon.

DAUER, V.P., PANGRAZI, R.P., 1995, *Dynamic physical education for elementary school children (11thed.*.Massachusetts:Allyn and Bacon.

DAVE, RH., 1970, *Psychomotor levels developing and writing behavioral objectives*. Tuscon AZ: Educational Innovators Press.

FEUER, M.J., FULTON, K.L., 1993, *The manay face of performance assessment*. Phi delta-appan: V 74, N 6 p:478 February.

FREEMAN, 2001, *Physical education and sport in a changing Society (6th ed).* San Francisco: Benjamin Cummings.

KRATHWOHL, D.R., BLOOM, B.S., MASIA, B.B., 1964, *Taxonomy of educational objectives the classification of educational goals, handbook II: affective domain.* NewYork: David McKay Company, Inc.

LUND, J.L., KIRK, M.F., 2002, *Performance-base assessment for middle and high school physical education.* Champaign, IL: Human Kinetics.

MARSH, C.J., WILLIS, G., 2007, *Curriculum. Alternative approaches, ongoing issues.* New Jersey: Pearson.

MARZANO, R.J., PICKERING, D., MCTIGHE, J., 1993, *Assessing student outcomes.* Alexandria, VA: Association for Supervision and Curriculum Development.

MCTEER, J.H, BLANTON, F.L., 1978, Comparing views of students, parents, teachers, and administrators on objectives for the secondary school.*Education,96,* 259–263.

MOHNSEN, B.S., 2003, *Teaching middle school physical education. A standards-based approach for grades 5-8*. United States: Human Kinetics.

PIAGET, J., 1972, *The psychology of the child*. New York: Basic Books.

POPHAM, W.J., 1997, What's wrong and what's right with rubrics. *Educational Leaderships, 55*(2), 72-75.

QUELLMALZ, E.S., 1991, Developing criteria for performance assessments: The missing link.*Applied Measurement in Education,4*(4),319-331.

THOMPSON, T.L., MINTZES, J.J., 2002, Cognitive structure and the affective domain: On knowing and feeling in biology. *International Journal of Science Education,24,* 645–660.