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Enhancing Learning Outcomes in Psychology through Active Learning Strategies in Classroom and Online Learning Environments

Grace A. Fayombo (Corresponding Author)
School of Education, The University of the West Indies,
Cave Hill Campus
Barbados

E-mail: grace.fayombo@cavehill.uwi.edu

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Abstract
This study investigated the relationships among active learning strategies utilised in both face to face classroom (role play and videos) and online (discussion forum and glossary activities) and students' learning outcomes (SLOs) among a sample of 158 undergraduate psychology students at The University of the West Indies (UWI), Barbados. The two instruments used for data collection were Active Learning Strategy Survey and Student Learning Outcomes Assessment Scale. Data were analysed using descriptive statistics, Pearson product-moment correlation coefficient and multiple regressions analysis. Results revealed significant positive relationships between the active leaning strategies utilised in both classroom and online environments and the student learning outcome (SLOs); the results also showed that the strategies contributed *11% (Rsq=0.112)* to the variance in SLOs and this was found to be significant *($F(4,153) = 4.84, p < .001$).* Additionally, it was found that the strategies utilised in the classroom emerged as better predictors of SLOs than the strategies employed online. These results were discussed in the light of the importance of the active learning strategies as best practices for promoting learning outcomes among the university students.

Keywords: Student learning outcomes (SLOs), Active learning strategies, Psychology, Undergraduates

1. Introduction

Active learning is crucial to effective mastery of the subject matter in different learning situations and is aimed at achieving the student learning outcomes (SLOs) in both traditional face to face and online environments. Felder and Brent (2009) suggest that active learning is anything course-related that all students in a class session are called upon to do other than simply watching, listening and taking notes; which Csikszentmihalyi (1997) also refers to as a "mental state of flow when students are completely involved in an activity for its own sake", the best outcome of which is feelings that the learning is both enjoyable and will profit them in the future. Active learning therefore provides opportunities for students to meaningfully talk and reflect on the content, ideas, issues, and concerns of an academic subject thereby shifting the focus of instruction from what should the instructor teach or deliver to students to what the students are able to do with course the material (Meyers & Jones, 1993). Thus, the knowledge gained is "immortalised" which is in consonance with the specification of the student learning outcomes. An SLO refers to a statement of what a learner is expected to know, understand and/or be able to demonstrate at the end of a period of learning (Donnelly and Fitzmaurice,

2005; Gosling and Moon, 2001; Kennedy, Hyland, & Ryan 2012; Moon, 2002) thus recounting significant and essential learning that learners have achieved, and can reliably demonstrate at the end of a course or program, usually expressed as essential and enduring knowledge, abilities (skills) and attitudes (values, dispositions) that constitute the integrated learning needed by a graduate of a course or program. Purser (2003) further asserts that:

> Learning outcome is also widely used in a more general sense to indicate the overall output of a programme, rather than in the narrow sense of a technical statement. The principal question asked of the student or the graduate will therefore no longer be "what did you do to obtain your degree?" but rather "what can you do now that you have obtained your degree?" This approach is of relevance to the labour market and is certainly more flexible when taking into account issues of life-long learning, non-traditional learning, and other forms of non-formal educational experiences.

Thus, the emphasis is on the learner regarding the ability to do something using the terms like define, list, identify, name, recall, analyse, calculate, design and on teaching regarding the aims and objectives and use of terms like know, understand, be familiar with. However, SLOs are not the same thing as assessment; there are various types of assessment and learning outcomes are only one type of assessment; examples of types of assessment include but are not limited to assessment of needs, satisfaction, outputs/service outcomes and learning outcomes assessment (Learning Outcomes Handbook; University of Wisconsin-La Crosse 2009). Thus, this study investigated the influence of the active learning strategies utilised in the classroom and online on one of the learning outcomes specified for this course.

2. Active Learning Strategies and Student Learning Outcomes

There are strong empirical evidences that active learning strategies such as discussion, video clips, games, role–play, five minute paper, clarification pauses, and small group predicted learning outcomes and academic achievement among a sample of 158 Psychology undergraduate students at the University of West Indies, Barbados (Fayombo 2012; 2013) and that psychology students exposed to active learning strategies such as group discussions scored higher than their counterparts who were exposed to traditional method (Yoder, & Hochevar 2005). Similarly at the secondary and tertiary levels, Sousa (2000) and Stice (1987) investigated the amount of information retained by some students after a 24 hour period and found that the less their engagement the less they retained the information. Hu and Kuh (2002) define engagement as "the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" Furthermore, student engagement refers to "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes" (Kuh, Kinzie, Buckley, Bridges & Hayek 2007) and "the extent to which students are engaging in activities had been be linked with high-quality learning outcomes" (Krause and Coates, 2008). Longitudinal studies also show that a cohort of engineering students in North Carolina State University instructed using active learning techniques outperformed their counterparts on multiple measures such as retention, graduation and pursuit of graduate study (Felder, Felder, & Dietz, 1998). More importantly, investigators found that active involvement in learning strengthens learning regardless of the environment whether online or the traditional face to face classroom (Harasim, Starr, Teles, & Turnoff, 1997); thus requiring "intellectual effort, encouraging higher-order thinking (analysis, synthesis, evaluation)" and providing a means for the learner to assimilate, apply, and retain learning (Bonwell & Eison, 1991). It was therefore concluded that though lecture is important for dissemination of information, research shows that students need to be involved in order to remember information, concepts and skills—the most sophisticated level of really knowing being the ability to teach someone else that same skill

3. Active learning Strategies: Role play and Video

Consequently, researchers have reported relationships between active learning strategies which foster student engagement and learning. Concerning role play, Cruz and Murthy, (2006) suggest that "as students take on the feelings and voices of peoples of other times and places, the learning of historical content becomes more natural". When a student is actively involved in his or her learning as in role play, he or she is more likely to truly connect with the material and remember the concept for a long period of time thus achieving the learning outcomes. This was corroborated by Graves (2008) finding that student's role-playing was beneficial as well as enjoyable; however, it was pointed out that the academic level does matter: the higher the academic level, the more students indicated they liked role-playing and that it is one of the most important techniques for learning communication skills, after discussion (Johnson, Sutton & Harris 2001). Likewise, it was found that teamwork skills and team member participation can often be enhanced through role-playing as it allows for hypothetical situations to be approached in an authentic setting (Lingard & Berry, 2002; Luca & Heal, 2011) and that situated learning allows learners to construct their own meaning and improves learning outcomes (Alessi & Trollip, 2001; Anderson, 1983; Park & Hannafin, 1993; Schank 1997).

Likewise, videos had also been found to be effective by instructors in achieving student learning outcomes when it is watched actively to learn from it. Moore (2013) suggests that videos should be used as: a guided lesson to help ensure that students watch videos actively and gave it their full attention; a springboard for in-depth discussion to encourage students to make a personal connection between video content and their own existing knowledge; a springboard for critical thinking to discuss and apply video content to novel situation and lastly as a way to strengthen online research skills while driving conceptual understanding. It was further suggested that effective use of video helps stimulate students' interests, set the tone of a class, or elicit a shared experience among students; generate discussion; illustrate complex topics or bring otherwise inaccessible material into the classroom, such as: a guest lecturer, video-based case studies, an experiment that is difficult or impossible to do in a lecture hall; footage of geographically distant places (Poonati & Amadia, 2010). In addition, the visual stimulation and story-telling characteristics of video can lead to deeper comprehension and longer-lasting retention (Choi & Johnson, 2007). However, for effective learning to take place, videos need to be viewed in combination with appropriate instructional methods (Sherer & Shea, 2011) such as discussions and other learning activities, to ensure that students attain the intended learning outcomes because watching videos in isolation may lead to misinterpretations or lack of deeper understanding. Thus, students need to see the value in watching videos. Failing to clearly connect videos to instructional goals may lead students to view it as irrelevant.

4. Active leaning Strategies: Discussion Forum and Glossary Activities

Evidence also suggests that online teaching is growing at a rapid pace. Ragan (2009) asserts that many courses have been designed to enable the instructor to be more of a facilitator rather than an active participant in the classroom space and that building an active, student-centered learning environment in online classes is needed to prevent instructors from becoming stagnant and to motivate and inspire them to take on a variety of roles as the students' "guide, facilitator, and teacher". However, Kelly (2014) argues that online courses have fewer opportunities for the spontaneous, real-time exchanges of the face-to-face classroom and that online instruction requires a deliberate approach to design and facilitation which was further corroborated by Simunich (2014) that "online, learning doesn't happen by chance" as such the faculty should vary the learning experiences, using a backward design approach, they should consider what types of activities will enable students to demonstrate that they have achieved the course's learning outcomes. Similarly, Krause (2005) lists ten 'working principles' to enhance student engagement among which is managing online learning experiences with care by capitalising on

the community-building capacities of online discussion forums to connect students to each other and to the learning community.

Additionally, Jones and Jones (2014) confirm that in the online instructional environment, the discussion questions, posts, and responses are the lifeblood of the course. They argued that although writing formal papers and completing quizzes are typical components of online courses, however, the opportunity to new learning occurs within the discussion forums provided the students did not answer by regurgitating the content of the course material. It was also suggested that the discussion board expands and contracts, or is kept alive with the relevance of the question to the course, current events emanating from watching the news, reading current articles, or reviewing internet news site and experiences of the faculty and the students. The researchers conclude that faculty should use their imagination to connect current events to course-related material assessment to make discussion forum to be beneficial to the students. Parisio (2011) also reported the importance of online discussion forum from the perspective of the university teachers; that learning through online discussion is a way to provide time and access; engage learners, foster a community of learners and enable higher order cognition and learning. Likewise, Jin, Thunders and Page (2013) confirm that repeated exposure of the students to key concepts through the Glossary Random Entry function in the Moodle in an online learning environment may help students learn difficult concepts present in the Applied Sciences courses, encourage first year students to engage more actively with the moodle online learning environment, and ultimately further improve their learning experience with retention of the health science concepts, and an optimal successful outcome in their core 100-level papers.

From the literature reviewed, it is evident that there is a growing consensus that active learning is pivotal to effective teaching learning process in both classroom and online learning environments thus making it necessary for both the faculty and the students to shift from the traditional teacher centre, which is more convenient but ineffective method to the more profitable but also complex constructivist learner centre method where the learner is greatly involved in the learning process. Surprisingly, many students seemed to prefer traditional method of lecturing, they therefore resist non-lecturing approaches because active learning activities provide a sharp contrast to the very familiar passive listening role (Bonwell 1996); many students think that in student centre method, some of the burden is shifted to them especially when given an assignment which had not been discussed in the classroom (Felder & Brent 1996). From the perspectives of the instructors, they resist active learning partly because they see themselves as good lecturers and therefore see no reason to change (Bonwell 1996), and they received low teaching evaluations from the students they teach actively who clearly prefer traditional passive method and because of this, some are actually ready to give up (Felder 2011).

5. Present Study

Suffices to say that The University of the West Indies, Cave Hill Campus, Barbados is not immunised against the lecturers' and students' resistance to active learning strategies; this is why the university is making serious efforts through the Centre for Excellence in Teaching and Learning to train the faculty to adopt active learning strategies in their classroom practices and online for effective learning. Though lecturing is potentially a useful means of transmitting information, teaching does not equal learning; this can be seen clearly in the painful disparity between what we think we have effectively taught, and what students indicate they have learned on the examination papers that we grade. Hence, it is necessary to incorporate effective approaches that will enhance students' learning and formative assessment in both classroom and online environments. Additionally, no study had been conducted to investigate the active learning strategies utilised in both face to face classroom and online and the influence on the

SLOs among the UWI students as carried out in this study. It is against this backdrop that this study was conducted to find out whether the active learning strategies utilised in both face to face classroom (role play and videos) and online (discussion forum and glossary activities) will influence the student learning outcomes (SLOs) among some psychology undergraduates in Barbados. The student learning outcomes for this study are:

i) By the end of the course, the students should be able to demonstrate their knowledge of the assumptions of learning theories of Skinner, Vygotsky, Pavlov and Bandura .

ii) They should be able to conducting a small piece of research to find out whether these theories are applicable to the Caribbean setting.

It is expected that the active leaning strategies utilised in both the classroom and online environments will predict student learning outcome (SLOs).

Thus, the following research questions are addressed in this study:

1) Are the learning outcomes satisfactorily achieved in this course?
2) Did the students participate in the lectures and online activities?
3) What is the profile of students' ratings on active learning strategies utilised in the classroom and online?
4) Are there significant relationships among the active learning strategies utilised in the classroom (video and role play), those utilised online (discussion forum and glossary activities) and the student learning outcomes?
5) Will active learning strategies predict SLOs?
6) What are the relative contributions of the active learning strategies to SLOs?
7) What are the relative contributions of the active learning strategies utilised in the classroom and online to SLOs?

6. Methods

6.1 Participants

The participants were 158 out of 189 Psychology undergraduate students who offered Learning Theory and Practice Course at The University of the West Indies, Cave Hill Campus, Barbados. Their age ranged between 18-60 years (Mean age 39.0years, SD = 1.73). There were 59 males and 99 females, 90 from the Faculty of Social Sciences; 68 from the Faculty of Humanities & Education; Pure & Applied Sciences; 107 were Barbadians while others were from other Caribbean Islands- St Vincent, Trinidad and Tobago, St Lucia, Jamaica, Dominica and Grenada.

6.2 Measures

The two instruments used to collect data in this study are:

1) Active Learning Strategy Scale which has three sections. Section A comprises of the demographic variables such as gender, faculty/department, year of study, nationality, age etc. Section B consists of 7 close and open ended questions designed to find out whether the students participated in the different classroom and online activities. Items include:

a. Did you role play during the lectures? yes no
   If yes how many times? _____
   If no, why not? _____

b. Did you participate in the discussion forum online? yes no
   If yes, how many times? _____
   If no, why not? _____

Section C consists of nine subscales with 54 items designed to measure the different active learning strategies (Power Point presentation, video, discussion, games, clarification pauses,

role play, one-minute-paper, group work, glossary activities and discussion forum) for promoting learning outcomes. Only four subscales (video, role play, glossary activities and discussion forum) were selected for this study; there are six items in each subscale with three positively and three negatively worded items like:

Videos

(i) Videos create mental images of the topics taught

(ii) Watching videos during lectures is a waste of time

Role Play

(i) Role play creates excitement during lectures

(ii) Role play is just a form of entertainment

Discussion Forum

(i) Discussion forum is engaging for me online

(ii) Discussion forum is a repetition of class activities

Glossary Activities

(i) Glossary activities help in clarifying meanings of different terms

(ii) Glossary activity is too mentally tasking

All the items were measured by a modified 4-point Likert scale response anchors ranging from strongly agree to strongly disagree with corresponding scores of 4, 3, 2, and 1. All the negative items were reversed during analysis. The items were generated during the review of literature and the initial versions were given to experts for suggestions and comments before coming up with the final version. The reliability of the instrument was ascertained by carrying out a pilot study among some psychology students. The instrument yielded the following Cronbach's Alpha reliability coefficients for the different subscales as shown in table 1:

Table 1: Alpha Reliability Coefficients of Active Learning Strategies with 4 subscales (N = 30)

Sub Scale	Alpha Coefficients	No of Items
Video clips simulations	0.84	6
Role Play	0.77	6
Discussion Forum	0.72	6
Glossary	0.74	6

These alpha reliability coefficients of the 4 subscales ranging from 0.72 to 0.84 indicated that the instrument has a high internal consistency and the validity was ascertained by the choice of items which were subjected to internal consistency analysis (Cronbach's Alpha), which is an index of item homogeneity and an indication of construct validity.

The second instrument is the Student Learning Outcomes Assessment Scale which was used to assess the SLOs specified to be achieved using active learning strategies in the classroom (role play and video) and online (discussion forum and glossary). Learning outcomes are statements of what is expected that the student will be able to do as a result of learning the activity (Jenkins and Unwin, 2001) and it is important to define outcomes as clearly and explicitly as possible. Thus, the learning outcomes in this study were specific and were stated in measurable terms (as stated under the present study); they were specified to measure the students' knowledge of the theories both in the classroom and online. The students were also asked to conduct a little piece of research which was 50% of the course work to verify the applicability of these theories to the Caribbean setting. To ensure the content and construct validity, the initial versions were given to experts for suggestions and comments before coming up with the final version as suggested by Student Learning & Outcomes Assessment; University of Rhode Island that it helps to work with one or two people to draft SLOs--incorporating different perspectives; or edit statements with others in your department and consult resources outside the department.

6.3 Procedure

Informed consent of the students to participate in the survey was obtained during the lectures prior to the administration of the Active learning strategy questionnaire. The students were briefed of the purpose of the research and that they were free not to participate in the study if they so wished. Thus out of 189 students, only 158 gave their consent to participate. The Active Learning Strategies Scale with the four components (role-play, video, discussion forum, glossary activity) was administered to the students by the 10th week of lecture utilising the active learning strategies in both classroom and online. The students were surveyed in their lecture halls with the help of three research assistants who had been groomed in the administration of the instrument and the administration lasted for approximately 10 minutes.

The researchers took time to brief the participants on the process for answering the items in the questionnaire and they were told that it was not for examination purpose but for research and that the information would remain confidential. To buttress this, the students were told not to write their names or identification numbers on the instrument; however, in order to be able to match their scores in Active Learning Strategy Scale with their grades in the SLOs, they were given codes to be written on the two instruments. The researchers ensured that all the items in the instrument were properly filled and the questionnaires were collected immediately the participants had finished.

The SLOs for this study were assessed through a group project which covered both the classroom and online activities. Before embarking on the project, the four learning theories of Skinner, Vygotsky, Pavlov and Bandura were discussed in the classroom during the fifth, sixth, seventh and eighth weeks of lectures of the semester respectively; the students also watched videos on the theories and role played the features that characterised the theories. The students further learnt about these theorists online by engaging in glossary activities and discussion forum. Although 189 students registered for the course however, 180 students did this assignment. There were 20 students in each tutorial class (9 classes in all). The students were put in four groups in each tutorial class; they were given guidelines to follow to conduct the research; they conducted their studies on the four theories by Skinner, Vygotsky, Pavlov and Bandura in homes, schools and various organisations in Barbados; one theory was studied by each group and 50 minutes was allotted for each group to present their findings each week. Thus, the findings on the four theories were presented for four weeks by the students concurrently in the nine tutorial classes with the assistance of three tutorial leaders who had been groomed in tutoring the students and assessment of the SLOs. For the purpose of this research, only the grades of 158 students who were actively involved in the classroom and online activities and who agreed to participate in this study were used. The students were asked to write the code that they wrote on the Active Learning Strategies Scale on their projects. The Student Learning Outcomes was assessed and scored out of 40 marks; 20 marks for oral presentation of their study and 20 marks for research paper submitted which was between 2,500 and 3,000 words long. This was 50% of the coursework grade.

6.4 Data Analysis

The data collected were entered into the SPSS, Descriptive Statistics, Pearson Product Moment Correlation Coefficient and Multiple Regression Analysis were conducted to analyse the data. All the negative items were reversed during the analysis.

7. Results

Research Question 1**:** Are student learning outcomes satisfactorily achieved in this course?

In order to find out whether the student learning outcomes were achieved satisfactorily at the specific period, the learning outcomes were measured, collated and marked out of 40 marks.

Table 2: Descriptive Statistics showing the achievement of Student Learning Outcome

	N	Minimum	Maximum	Mean	Std. Deviation
SLOs (classroom and online)	158	23	39	30.44	3.52

The result on table 2 indicated that the SLOs was achieved among this sample in both classroom and online environments with the mean score of 30.44; maximum score 39.00; minimum score 23.00; 19% of the participants scored between 22 - 27marks out of 40 marks; 43% scored 28 – 33 marks; while 38% scored 34 – 39 marks. Overall, table 2 revealed that the SLOs specified for both classroom and online were achieved satisfactorily.

Research Question 2**:** Did the students participate in the lectures and online activities?
The students were asked to indicate whether they participated in active learning activities in the classroom (role play and video) and online (discussion forum and glossary activities).

Table 3: Students' participation in classroom and online activities (n=158)

Class Activities/Learning Strategies	Yes		No	
	(Frequency)	(%)	(Frequency)	(%)
Role played during lectures	134	85	24	15
Watched videos during lectures	154	98	4	2
Took part in discussion forum	140	89	18	11
Took part in glossary activities	131	83	27	17
Took part in group presentations	157	99	1	1
Total	158	100	158	100

From the findings on table 3, it is evident that the students participated actively in the classroom and online activities. Almost all the students watched videos and majority of them were also involved in other activities. These results indicate that the learning activities were engaging for the students during lectures and online although video tops the list showing that it is probably most effective in promoting learning.

Research Question 3: What is the profile of students' ratings on Active Learning Strategies utilised in the classroom and online?

Table 4: Profile of students' ratings on active learning Strategies. (N= 158)

Items	SD		D		A		SA	
	F	%	F	%	F	%	F	%
Role play helps me to reflect on the concepts taught in this course	1	0	11	7	91	58	55	35

Videos create mental images of the concepts taught	0	0	1	0	82	52	75	48
Discussion forum gives the opportunity for shy students to be actively involved in learning online	0	0	17	10	88	56	53	34
Glossary activities help in clarifying different terms used in the theories	1	0	27	17	94	60	36	23

Similarly, as showcased in table 3, it is evident from the results displayed on table 4 that the majority of the students agreed that all the strategies enhanced their learning thus: video 100%; role play 93%; discussion forum 90% and glossary activity 83%. Again, this result confirms that video is most effective in promoting learning.

Research Question 4: Are there significant relationships among the active learning strategies utilised in the classroom (video and role play), those utilised online (discussion forum and glossary activities) and the SLOs?

Table 5: Correlations between Active Learning Strategies and SLOs (N=158)

Variables	1	2	3	4	5	6	7
1) Learning Outcomes	-						
2) Video	.316**	-					
3) Role play	.234**	.442**	-				
4) Discussion Forum	.224**	.525**	.512**	-	.		
5)Glossy Activity	.221**	.541**	.574**	.384**	-		
6)Classroom Strategies	.325**	.852**	.846**	.661**	.657**	-	
7) Online Strategies	.267**	.641**	.654**	.819**	.844**	.763**	-

The findings displayed on table 5 revealed the statistically significant positive correlations among the active learning strategies utilised in the classroom (video and role play), those utilised online (discussion forum and glossary activities) and the student learning outcomes. The results indicate that the strategies utilised in the classroom and online are important in achieving the learning outcomes with video having the highest correlation, followed by role play, then discussion forum and finally the glossary activities. Furthermore, the significant positive interrelationships among the learning strategies also suggested that they are interwoven and that they depend on one another for effective learning. The findings also show that overall; the classroom strategies have higher correlation with SLOs when compared with the online strategies.

Research Question 5: Will active learning strategies predict student learning outcomes?

Table 6: Multiple Regression table showing active learning strategies as predictors of SLOs (N= 158)

Active Learning Strategies	SE (b)	β	T	Sig.(P)

Video clips	.138	.243	2.442	.016
Role play	.143	.095	.940	.348
Discussion Forum	.130	.041	.425	.672
Glossary Activities	.128	.019	.191	.849
Rsq = 0.112; *Sig p< .001 F(4,153) = 4.84,*Sig p < .001				

Note: SE (b) (unstandardised coefficients showing the predicted increase in the value of the criterion variable)
β (the standardized beta coefficients, gives a measure of the contribution of each variable to the model)
t (gives a rough indication of the impact of each predictor variable, the bigger the t value, the larger the impact of the predictor variable on the criterion variable).
R-sq the square of the measure of correlation and an indication that the model is fit for future prediction of learning outcomes among the university students.

The results of the regression analysis on table 6 revealed that the active learning strategies (classroom and online) significantly accounted for *11% (R-square =0.112); (F (4,153) = 4.84, p < .05)* of the variance in student learning outcomes. Therefore, the active learning strategies significantly predicted student learning outcomes among some UWI psychology undergraduate students in Barbados.

Research Question 6**:** What are the relative contributions of the active learning strategies to student learning outcomes?
In table 6 also, the standardized β values reveal the decreasing order of the predictors: videos > role play > discussion forum > glossary activity. Surprisingly, only video clips had significant relative contribution, (β= 0.243, p< 0.05), while role play, discussion forum and glossary activity did not. These results indicate that video is more effective in achieving SLOs among the students as shown in earlier results.

Research Question 7: What are the relative contributions of the active learning strategies utilised in the classroom and online to student learning outcomes?

Table 7: Multiple Regression table showing active learning strategies as predictors of SLOs (N= 158)

Active Learning Strategies	SE (b)	β	T	Sig.(P)
Classroom Strategies	.097	.288	2.456	.015
Online Strategies	.092	.047	.404	.687
Rsq = 0.106; *Sig p< .001 F(2,155) = 9.21,*Sig p < .001				

The result displayed on table 7 shows that overall, the classroom strategies contributed more (β= 0.288, p< 0.05) to the variance in SLOs than online strategies (β= 0.047, p> 0.05) and this result was significant. This result indicates that students learn more when involved in face to face activities than online when these strategies are used.

8. Discussion

This study investigated the influence of active learning strategies utilized in the classroom (video and role-play) and online (discussion forum and glossary activity) on the student learning outcomes among some undergraduate psychology students at UWI Barbados. The findings show that the active learning strategies are effective in achieving learning outcomes in the classroom and online. The results of the descriptive statistics on table 1 show that learning outcomes were satisfactorily achieved in the classroom and online; in table 2 the results show that majority of the students participated in the online and classroom activities and in table 3 majority of the students gave high ratings to the learning strategies indicating that the active learning strategies helped them to learn effectively as earlier reported by Fayombo (2012, 2013**;** Sousa 2000, Yoder, & Hochevar 2005 **)**. These results were quite expected among this sample because the active learning strategies were well integrated into the learning activities, therefore learning which seems to be an unattractive activity was fun, interesting, captivating, motivating and inspiring for the students in this course. The students were involved in the learning activities because it was meaningful to them and it addressed both their present and future needs as earlier posited by Csikszentmihalyi (1997) that active learning is a "mental state of flow when students are completely involved in an activity for its own sake", the best outcome of which is feelings that the learning is both enjoyable and will profit them in the future.

Although the students confirmed that all the strategies were effective in promoting learning however, it was interesting to find that video was most engaging for the students; 98% indicated that they watched videos during the lecture and 100% also agreed that videos created mental images of the concepts taught. Probable reasons for these findings may be due to the fact that incorporating videos into the lectures was attention-grabbing for the students which consequently kept them awake and paved way for effective learning especially for late lectures as in this course (7pm -9pm). This result is in consonance with Poonati and Amadia, (2010) assertion that video is like bringing a guest lecturer into the classroom. The videos thus helped to avoid the monotony of listening to just one instructor during the lecture for thirteen weeks and it stimulated the students' visual abilities as reported that the videos created mental images of the concepts taught in the course.

Another major finding of this study was that the active learning strategies utilized in the classroom (videos and role play) and online (discussion forum and glossary activity) significantly correlated with the SLOs and this was quite expected, indicating that effective learning and academic achievement depend on the students' active involvement in the learning process through the learning strategies. The reasons for this finding may not be far-fetched. In the face to face learning environment, the videos were utilized to explain the theoretical assumptions of the theories discussed in this course thereby encouraging the students to make a personal connection between the video content and their own existing knowledge as earlier suggested by Moore (2013). It is to be noted also that video has the highest correlation ($r = .316$, $N = 158$, $p < .0005$) as shown in table 5. These results are in consonance with Choi and Johnson (2007) view that visual stimulation and story-telling characteristics of video can lead to deeper comprehension and longer-lasting retention.

The sample of this study also role played during the lectures to demonstrate their knowledge of the concepts taught thereby making the learning situation to be natural and to facilitate a deeper understanding of the learning theories discussed. This result also amplified Cruz and Murthy (2006) view that "as students take on the feelings and voices of peoples of other times and places, the learning of historical content becomes more natural" and that when a student is actively involved in his or her learning as in role play, he or she is more likely to truly connect with the material and remember the concept for a long period of time thus achieving the learning outcomes**.** Role play was also utilized in this course to foster team spirit and as the

students role played the different concepts and characters in groups, the theoretical ideas became real and cemented in the minds of the students as posited by Lingard and Berry, (2002); Luca and Heal, (2011).

In the online learning environment, the students responded to the discussion topic posted, discussed, shared ideas, gained new information and clarified issues on the learning theories which also aided the attainment of the SLOs as confirmed by Jones and Jones (2014) that discussion questions, posts, and responses are the lifeblood of the course as well as gateway to new learning provided the students did not answer by regurgitating the content of the course material. The results of this study also lend credence to Parisio (2011) earlier views on the importance of online discussion forum from the perspective of the university teachers; that learning through online discussion is a way to provide time and access; engage learners, foster a community of learners and enable higher order cognition and learning. Additionally, the sample also participated in glossary activities online; they were presented with terms related to the theoretical concepts taught in the course to aid the mastery and retention of the topics. This significant positive outcome also lends credence to Jin, Thunders and Page (2013) recent report that repeated exposure of the Applied Sciences students to key concepts through the Glossary Random Entry function in the Moodle in an online learning environment may help them learn difficult concepts, encourage first year students to engage more actively with the Moodle online learning environment, and ultimately further improve their learning experience with retention of the health science concepts, and an optimal successful outcome in their core 100-level papers.

Another significant outcome of this study which was equally expected was that the active learning strategies (both classroom and online) jointly contributed *11% (Rsq=0.112)* to the variance in the SLOs and this was found to be significant *($F(4,153) = 4.84, p < .001$)* as seen in table 6. These results corroborated earlier findings that active involvement in learning strengthens learning regardless of the environment whether online or the traditional face to face classroom (Harasim, Starr, Teles, & Turnoff, 1997); thus requiring "intellectual effort, encouraging higher-order thinking (analysis, synthesis, evaluation)" and providing a means for the learner to assimilate, apply, and retain learning (Bonwell & Eison, 1991). Interestingly, only the video had significant relative contributions ($\beta = 0.243$, $p < 0.05$) out of all the active learning strategies again confirming the findings in tables 2, 3, and 4 and the arguments for these results.

The final and also an interesting finding of this study was that the classroom strategies (video and role play) contributed more to the variance in SLOs and this was found to be significant ($\beta = 0.288$, $p < 0.05$) when compared with online strategies (discussion forum and glossary activities) whose contributions were not significant as showcased on table 7 ($\beta = 0.047$, $p > 0.05$). An explanation construed for this finding was that the students tend to learn more in the face to face classroom because the activities are more engaging, enjoyable, interesting, encouraging and majority of the students are involved in the activities at the same time. This result amplified Kelly (2014) earlier contention that online courses have fewer opportunities for the spontaneous, real-time exchanges of the face-to-face classroom and that online instruction requires a deliberate approach to design and facilitation which was further corroborated by Simunich (2014) that "online, learning doesn't happen by chance" as such the faculty should vary the learning experiences, using a backward design approach by considering what types of activities will enable students to demonstrate that they have achieved the course's learning outcomes. Suffice to say therefore, that the lecturers need to put in extra effort to make online activities to be as rewarding as the classroom activities in order to accomplish the SLOs.

9. Conclusion

The results of this study confirmed that the active learning strategies utilized both in the classroom (video and role-play) and online (discussion forum and glossary activity) influenced the achievement of student learning outcomes (SLOs) which were to be demonstrated in the classroom and online as well as to conduct researches on the four learning theories to verify their applicability to the Caribbean setting. It is pertinent to mention that the students conducted the studies and majority confirmed the relevance of the theories to their cultural background. Although it was found that the classroom strategies were better predictors and that video emerged as the best strategy, all the same, these results underscore the need for the instructors operating at different levels of education especially the faculty who are still using the traditional method of teaching in the universities to incorporate these strategies into their practices for effective teaching and learning both inside the classroom and online.

The findings of this study also provided an interesting theoretical link with the prior investigators and learning theorists like Skinner and Vygotsky who demonstrated the need for learners to be active and functional for effective learning. Additionally, the findings of this study are of great significance because the student's practical application of the knowledge of course content to their cultural setting was assessed through the SLOs thereby authenticating the relevance of the course to the students' cultural background. Finally, additional studies can be carried out to investigate the influence of variables like gender, age, level of study, mode of study etc on the active learning strategies utilised in different learning situations to further expand the knowledge of students' learning in the Caribbean and consequently the literature on active learning strategies and students' academic achievement.

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