

Competency Training Needs of Business Education Lecturers on the usage of Assessment Software Applications in North-east Nigerian Universities

S. Hayatu , H. Bello, A. A. Deba and B. S. Dalhat

Abstract

This study determined the training needs on the usage of assessment software applications for research activities among business education lecturers in North-east Nigerian universities. The study adopted explanatory sequential mixed method design. Two research questions and one hypothesis guided the study. The study's population consists of 57 business education lecturers in Abubakar Tafawa Balewa University Bauchi, Modibbo Adama University Yola and University of Maiduguri. Total population sample was used for the quantitative part of the study, whereas three participants were selected for the qualitative part of the study using purposeful sampling technique. A dual-response format structured questionnaire was developed as a quantitative data collection instrument based on Borich needs assessment model, while an open-ended interview was used for qualitative data collection. The questionnaire was validated by five experts while the validity of the interview schedule was conducted using participants' checking. The reliability of the questionnaire was determined using Cronbach alpha after a pilot study at Ahmadu Bello University Zaria, the coefficients of 0.85 (importance) and 0.83(ability) were found, signifying that the instrument was reliable. The reliability of the interview schedule was determined using a peer debriefing method. The data was collected by the researchers and two trained research assistants. Forty-eight questionnaires were retrieved representing eighty-four percent rate of return. The quantitative data generated from research question one was analyzed using Mean Weighted Discrepancy Score (MWDS). Research question two was analyzed using thematic analysis, the null hypothesis was analyzed using one-way analysis of variance. The findings of the study among others indicated that business education lecturers in universities in North-east Nigeria need training in the usage of assessment software applications, also significant differences do not exist on the training needs among accounting, marketing and OTM lecturers. The study recommends that stakeholders in education should ensure that business education lecturers in North-east Nigerian universities are trained on the effective use of assessment software applications.

Keywords: Assessment, Software Applications, Training Needs, Business Education Lecturers.

Introduction

Assessment in education refers to different tools and methods employed by lecturers to measure, evaluate and record students' academic performance. Kizlik (2014) defines assessment as a broad term which connotes all processes through which information relative to some identified goal or objective is obtained. In other perspectives, assessment is the process of finding out information necessary for decision making about learners, educational policy, schools, curriculum and programmes (Nitko & Brookhart, 2011). Education

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remains one of the vital aspects of developing countries since through it the citizens struggle in developing their human capital, therefore, quality education requires good assessment (Marina, 2015). With the view to maintaining good assessment techniques available in our educational institutions, utilization of ICT-based assessment tools such as assessment software applications in particular or electronic assessment (e-assessment) in general is imperative. This is in agreement with the views of Marina (2015) who opines that since present educational institutions are becoming ICT driven with regards to instruction infrastructure and facilities, ICT can be used to facilitate assessment practice in different ways.

Assessing students' progress is a regular practice of lecturers in every institution of learning. Various studies have reported that students favour the use of assessment software applications/e-assessment over traditional assessments (Alsadoon, 2017; Petrisor, 2016), therefore, lecturers can utilise ICT as an assessment tool for administering tests, scoring tests, analysing the results and facilitating the assessment of students' learning outcome (Marina, 2015). This is evident since e-assessment is gaining ground by the day in higher institutions of learning as a means of assessing students. E-assessment plays a significant role in improving the performance of students and enhancing high-order thinking among them (Alruwais et al., 2018) as well as saves lecturers' time and energy (Hanifi, 2019) and saves the costs incurred in traditional assessment (Eshaghi, 2019). In view of these, there is a need for universities to take advantage of its utility as rightly recommended by Marina (2015) that educational institutions should strengthen their commitment in the development of a reliable assessment practice that can support both students, teachers and other stakeholders. Similarly, e-assessment has played a vital role in making students to be motivated in performing a given task, and also allows the teacher to have access to highly standardised materials and make objective judgement (Shaheen et al., 2019).

Assessment software applications are the various packages used for conducting tests and examinations as well as grading students' performance. These include: ProProfs Training Maker, Easy LMS, HireVue Assessments, Test Grading, Test Invite, DigiExam, ProvExam, OnDemand, Remark Test Grading, Examsoft, Cognician Lead Quizzes, Psyft Personality Assessment, Questionmark, CodeMeet, TutorPro Assessments, Brillium Solution, Assessmart, Digital Teacher, ExamN, Gauge, Insight, Journey, Kolbe Indexes, Learnosity, WeCP, Test Commander. Others include; Survey Monkey, Zoomerang, SurveyPro, Quia, QuizStar, SurveyGizmo and many others (Dawley, 2007; Marina, 2015). Various terminologies which includes; e-assessment, Computer-Based Assessment (CBA), Computer-Based Testing (CBT), Computer administered testing and computerised testing are frequently used by educators as substitutes for one another to mean electronic assessment (Shaheen et al., 2019). This study considered *ProProfs*, *Test Invite* and *DigiExam* as assessment software applications used in the study, this is because they are among the best assessment software applications (Serchen, 2024; Software Suggest, 2023).

Business education refers to the study of various technologies and relevant sciences as well as the acquisition of competencies necessary for occupations in different areas of the economy and social life (Otamiri cited in Nwokocha, 2015). Business education has three broad areas of specialisations which include; accounting, marketing and office technology management (OTM). Utilisation of assessment software applications in business education programmes for evaluation purposes becomes inevitable, this is because there is a paradigm shift from traditional instructional delivery and assessment process to more electronic means (Amesi & Ezeora, 2023). Having highlighted the positive impacts of assessing students electronically, business education lecturers can utilise the available assessment software applications in assessing the

academic achievement of their students objectively. In achieving this, the need for training the lecturers on how to use the assessment software applications effectively and efficiently remain highly important. But the needed competencies on the usage of the assessment software applications among business education lecturers is an issue of great concern which this study explored.

Literature Review

Assessment of students' performance was viewed as a fundamental part of the instructional delivery process (Eshaghi, 2019). The use of technology for assessment was traced to the 1920s when an automatic machine for testing was developed by Sidney L. Preeses (Skinner cited in Al Ruwais et al., 2018). It is evident that the use of assessment software applications not only reduces the lecturers' burden of manual assessment of large students but also facilitates easy feedback and analysis of students' performance. This is why researchers such as Paul (2020) recommended that both teachers and students should be encouraged to exhibit a positive attitude towards the use of e-assessment systems. However, there are various studies conducted on the training needs of lecturers/instructors with regards to the use of assessment software applications in particular or e-assessment in general. Isiwu and Isiwu (2021) conducted a study and found out that lecturers of library and information science need training and development in the use of electronic assessment for effective processing of students' performance. Also, Alruwais et al. (2018) in their study, reported that some teachers are incompetent on the use of technology for assessment of students' performance. Similarly, Paul (2020) conducted a study and reported that both teachers and students need training on the effective use of e-evaluation systems in education. In a related development, Okoli and Wagbara, (2016) asserted that most lecturers have inadequate competencies in utilizing digital resources such as assessment software applications due to inadequate training in meeting with the current technological advancement.

Another study carried out by Uvie (2021) discovered that secondary school teachers are competent towards implementation of school-based assessment. Similarly, Briones (2018) revealed that Physics teachers are proficient in electronic assessment and evaluation. Similarly, Chukwuedo and Igbinedion (2014) conducted an empirical study and found that TVE lecturers in South-south Nigerian universities need capacity building in the usage of ICT for instructional delivery purposes including assessment of students' performance. Also, Anaza (2019) discovered that student-teachers in colleges of education in North Central Nigeria need moderate training in the use of software applications. In the same vein, a study conducted by Mukhari (2016) reported inadequate training and low level of ICT proficiency among urban school teachers in Gauteng, South Africa.

Methodology

The area of the study was North-east, Nigeria. The design of the study was explanatory sequential mixed method. Two research questions and one hypothesis guided the study. The population of the study comprises of 57 business education lecturers in the three universities that offer business education programme in North-east, Nigeria which include; Abubakar Tafawa Balewa University (ATBU) Bauchi, Modibbo Adama University (MAU) Yola and University of Maiduguri (UNIMAID). Total population sample was used for the quantitative part of the study, whereas three participants were selected for the qualitative part of the study

using purposeful sampling technique. A dual-response format structured questionnaire was developed as instrument for quantitative data collection based on Borich needs assessment model, while an open-ended interview was used for qualitative data collection. The questionnaire was validated by five experts, two experts from the department of vocational and technology education, ATBU Bauchi, two experts from the department of vocational education, MAU, Yola and one expert from Mathematical science programme of ATBU, Bauchi, while the validity of the interview schedule was conducted using participants' checking.

The reliability of the questionnaire was determined using Cronbach alpha after a pilot study at Ahmadu Bello University Zaria, the coefficients of 0.85 (importance) and 0.83 (ability) were found, signifying that the instrument was reliable. The reliability of the interview schedule was determined using peer debriefing method. The data was collected manually by the researchers and two trained research assistants. Forty-eight questionnaires were retrieved representing eighty-four percent rate of return. The quantitative data generated from research question one was analysed using Mean Weighted Discrepancy Score (MWDS) with the aid of MWDS Calculator designed by Mckim and Saucier, (2012). The research question two was analyzed using thematic analysis while the null hypothesis was analyzed using one-way analysis of variance (ANOVA).

Research Questions

The following research questions were raised to guide the study:

- i. What are the competency training needs of business education lecturers in the usage of assessment software applications for instructional delivery?
- ii. What are the views of business education lecturers on their competency training needs on the usage of assessment software applications?

Research Hypothesis

The following research hypothesis was formulated and tested at 0.05 significance level:

H₀₁: There is no significant difference on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology and management lecturers.

Findings of the Study

The quantitative findings of the study were presented as follows:

Research Question One: What are the competency training needs of business education lecturers in the usage of assessment software applications for instructional delivery?

As indicated in Table 1, nineteen (19) out of the twenty (20) competency items for assessment software applications show a positive MWDSs indicating that training is needed (TN) on those competency items while only (1) of the competency items shows negative MWDS indicating that training is not needed (TNN) on the competency item which is AS 1. The cumulative MWDS was 4.46 indicating training is needed among business education lecturers in the usage of assessment software applications.

Table 1		MWDS of the Competency Training Needs of Business Education Lecturers in the usage of Assessment Software Applications for Instructional Delivery	
S/N	Competencies	MWDS	Decision
1.	Logging in	-2.23	TNN
2.	Creating a test or quiz	4.52	TN
3.	Choosing a test or quiz type	4.33	TN
4.	Choosing a template or creating from scratch	5.56	TN
5.	Creating user/student account	5.05	TN
6.	Managing the test account	5.30	TN
7.	Creating a question bank	4.49	TN
8.	Editing questions in the question bank	4.83	TN
9.	Creating question types	4.29	TN
10.	Setting test administration method	5.06	TN
11.	Giving the test or quiz a name	4.46	TN
12.	Adding name, description and image to a test	1.93	TN
13.	Changing the test or quiz image	2.27	TN
14.	Setting date and time of a test	3.13	TN
15.	Adding audio to a test question	5.83	TN
16.	Customizing multiple choice questions template	6.22	TN
17.	Previewing the test or quiz	5.89	TN
18.	Monitoring the testees	6.30	TN
19.	Grading the test or quiz	6.58	TN
20.	Generating achievement certificate	5.47	TN
	Cumulative MWDS	4.46	TN

Source: Field Survey (2023)

Research Hypothesis One: There is no significant difference on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology management lecturers.

As indicated in Table 2, the result of the one-way ANOVA shows that the p-value (0.94) is greater than the alpha value (0.05), therefore, the null hypothesis four is hereby accepted, this means that significant difference does not exist on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology management lecturers.

Table 2 One-way ANOVA on the Competency Training Needs of Business Education Lecturers in the usage of Assessment Software Applications						
	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	0.176	2	0.088	0.065	0.937	Accept
Within Groups	61.276	45	1.362			
Total	61.453	47				

Source: Field Survey (2023)

Qualitative Findings

Research Question Two: What are the views of business education lecturers on their competency training needs on the usage of assessment software applications?

The qualitative finding was presented using the SQC Model. SQC is a model designed for presenting the results of qualitative study in sequential manner. The SQC is an acronym in which the ‘S’ stands for ‘set up’ which refers to the meaning of the theme, ‘Q’ stands for ‘quotation’ or ‘quote’ which refers to the responses of participants while ‘C’ stands for ‘commentary’ which refers to the researchers’ comment on the views of the participants with regards to each subtheme. The qualitative findings of the study were presented as follows:

The Emergent Theme: Assessment software applications

Assessment software applications are the various packages used for conducting test and examination as well as grading students’ performance. These include: ProProfs Training Maker, Easy LMS, HireVue Assessments, Test Grading, Test Invite, DigiExam, ProvExam, Transformica, OnDemand, Remark Test Grading, Codicity, Examsoft, Outmatch, Cognician Lead Quizzes and many others. Participants 1, 2 and 3 were asked about their views on why they need training in the usage of assessment software applications (SAs) through the following questions:

- i. Among the three areas/options of business education which are Accounting, Marketing/Management and OTM, which one is your specialization?
- ii. Do you think you need training on the usage of assessment software applications?
- iii. Would you brief me on your view on why do you think you need training in the usage of assessment software applications such as *ProProfs*, *DigiExam* and *Test Invite* or their like?

In responding to the interview questions, the following reveals the participants’ views:

“Accounting, definitely, I need training Because I lack the necessary skills required for effective use of the software notwithstanding of its efficiency in assessing students’ performance. In fact, the software is effective since it can assist in saving time particularly in continuous assessment” (Interview with Participant 1).

“I specialized in marketing/management, yes I need the training, because I don’t possess the requisite skills and abilities of operating the software for assessing students’ performance” (Interview with Participant 2).

“I am from OTM option, yes of course, my opinion is that I need training because in order to be more effective and efficient in assessing students’ performance” (Interview with Participant 3).

In an attempt by the theme to answer the interview questions through analyzing the participants’ responses, the following sub-themes emerged:

- a. Training Need
- b. Inadequate Skills.
- c. Effectiveness and Efficiency.
- d. Saving Time

From the participants’ responses, inadequate skills, effectiveness and efficiency of assessment SA and saving time were the reasons for the need of training on the use of the SA for instructional delivery among business education lecturers in North-east Nigerian universities. Also, a strong relationship exists between the main theme which is assessment SAs and the sub-themes, that is, the participants need training on the use of assessment SAs, likewise inadequate skills is on the usage of assessment SA, and saving time are also attached to the main theme.

Training Need

Training need is another sub-theme that emerged from the interview responses, training need refers to the participants’ need of training and capacity building on the use of assessment SAs. The responses of the participants indicated that all the participants need training on the use of assessment SAs. Participant 1 need training because of inadequate skills on the use of the software, effectiveness and efficiency of the SA and saving of time. Participant 2 indicated that the need for training is also because of inadequate skills on the use of the SAs. Participant 3 perceived the need for training on the use of the software due to inadequate skills as well as its effectiveness and efficiency in assessment of students’ performances.

Inadequate Skills

‘Inadequate Skills’ is another sub-theme that emerged from the interview responses, ‘Inadequate Skills’ refers to lack of knowledge, expertise, abilities necessary for effective use of assessment SAs among the participants, Participant 1 and 2 perceived inadequate skills on the usage of assessment SA as one of the reasons for the need of training on the usage of the SAs. Participant 1 highlighted that “I need training Because I lack the necessary skills required for effective use of the software” in a similar vein, Participant 2 states that “Because I don’t possess the requisite skills and abilities of operating the software for the assessment of students’ performance”. Even though Participant 1 confirmed inadequate skills on using the SA, the Participant was of the view that the software is effective and efficient and has the potentials of saving time in assessment of students’ performance.

Effectiveness and Efficiency

‘Effectiveness and Efficiency’ is another sub-theme that emerged from the interview response, ‘Effectiveness and Efficiency’ means doing the right thing in a right way, it also refers to the ability of the SAs to save

time, energy and resources in performing a task. ‘Effectiveness and Efficiency’ arising as a result of using assessment SAs was viewed by two out of the three participants who is (Participant 1 and 3) as another reason why training is needed on the usage of assessment SAs. Participant 1 highlighted that “Because I lack the necessary skills required for effective use of the software notwithstanding of its efficiency in assessing students’ performance. In fact, the software is effective”, in the same vein, Participant 3 states that “My opinion is that I need training because in order to be more effective and efficient in assessing students’ performance”. Even though the SA was opined to be effective and efficient by Participants 1, the Participant holds the view that using assessment SAs will assist in saving time.

Saving Time

Saving Time is another sub-theme that emerged from the interview response, Saving Time refers to any avenue where by the time in performance of an activity or task is effectively and efficiently minimized. Participant 2 is of the opinion that using assessment SAs will save lecturers time. The Participant’s own expression revealed that “In fact, the software is effective since it can assist in saving time particularly in continuous assessment”. As revealed by the Participant, assessment SAs have the potentials of saving business education lecturers’ time during assessment of students’ performance.

Summary of Major Findings of the Theme

Based on the views expressed by the participants above, all the participants need training on the use of assessment SAs. The participants also indicated the reasons behind their need of training which includes; inadequate skills on the usage of the SAs, its effectiveness and efficiency in assessing students’ performance and saving time.

Discussions of the Findings

The finding that emanated from research question one revealed that business education lecturers need training in the usage of assessment software applications for instructional delivery, the corresponding hypothesis shows that significant difference does not exist on the competency training needs in the usage of assessment SAs among accounting, marketing and OTM lecturers. The finding of the research question support that of Isiwu and Isiwu (2021) who found that lecturers of library and information science need capacity building in the use of electronic assessment for effective processing of students’ performance. Also, the finding agrees with that of Alruwais et al. (2018) who found that some teachers are incompetent on the use of technology for assessment of students’ performance. The finding also supports that of Paul (2020) who reported that both teachers and students need training on the effective use of e-evaluation systems in education. Similarly, the finding is in line with the finding of Anaza (2019) who discovered that student-teachers in colleges of education need moderate training in the use of software applications. Also, the finding is in conformity with that of Mukhari (2016) who reported inadequate training and low level of ICT proficiency among teachers. The finding also concurs with the finding of Chukwuedo and Igbinedion (2014) who reported that TVE lecturers in South-south Nigerian universities need capacity building in the usage of ICT for instructional delivery.

On the contrary, the finding is not in line with the finding of Uvie (2021) who discovered that secondary school teachers are competent towards implementation of school-based assessment. Similarly, the finding disagrees with that of Briones (2018) who concluded that junior high school Physics teachers are proficient in

electronic assessment and evaluation. This contradiction can be attributed to the difference in the area of the study between the two studies. On the other hand, the finding of the research hypothesis supports the finding of Anaza (2019) who discovered that significant difference does not exist in the area of specializations of the student-teachers' self-assessment of ICT training needs. Also, the finding concurs with that of Al-swalha, (2017) who reported that there is no statistical significant difference on the training needs of faculty members of Al-huson college on employing multimedia in teaching and their specialization.

Moreover, the finding of the study is supported by the finding of the qualitative aspect of the study which revealed that all the participants need training on the use of assessment SAs. The participants also indicated that the reasons behind their need of training which includes; inadequate skills on the usage of the SAs, its effectiveness and efficiency in assessing of students' performance and saving time. The finding agrees with that of Iyang and Mngutayo, (2018) who reported that librarians have inadequate knowledge and skills of using SAs. The finding also concurs with that of Saratkar (2019) who reported that SAs not only save time but also improve efficiency.

Recommendations

Based on the findings of the study, the following recommendations were reached:

- i. Stakeholders in education should ensure that business education lecturers in North-east Nigerian universities are trained on the effective use of assessment software applications.
- ii. Business education lecturers should ensure the effective utilization of software applications for instructional delivery
- iii. University administrators should encourage business education lecturers on the effective and efficient use of assessment software applications.

References

- Alruwais, N., Wills, G., & Wald, M. (2018). Advantages and challenges of using e-assessment. *International Journal of Information and Educational Technology*, 8(1), 34-37. <https://doi.org/10.18178/ijiet.2018.8.1.1008>
- Alsadoon, H. (2017). Students' perceptions of e-learning at Saudi electronic university. *The Turkish Online Journal of Educational Technology*, 16(1), 147-153. <https://doi.org/10.18178/ijiet.2018.8.1.1008>
- Al-swalha, A. S. M. (2017). Training needs of faculty members in Al-huson college for employing multimedia in teaching. *Journal of Education and Practice*, 8(12), 102-111.
- Amesi, J., & Ezeora, C. I. (2023). Utilization of software internet resources for instructional delivery postgraduate programme in Rivers state universities. *Nigerian Journal of Business Education*, 10(1), 357-367.
- Anaza, A. O. (2019). Self-assessment of information and communication technology training needs among student-teachers of colleges of education in North Central Nigeria. *Journal of Library Science Education*, 1(1), 65-77
- Briones, C. B. (2018). *Teachers' competency in the use of ICT in Physics in the junior high school*. Proceedings of the 4th International Research Conference on Higher Education, KnE Social Sciences, pp. 177-204. <https://doi.org/10.18502/kss.v3i6.2380>
- Chukwuedo, S. O., & Igbinedion, V. I. (2014). ICT competencies and capacity building needs of technical and vocational education lecturers in Nigerian universities. *African Journal of Interdisciplinary Studies*, 7, 45-53.
- Dawley, L. (2007). *The tools for successful online teaching*. Idea Group Inc.

- Eshaghi, M. (2019). An introduction to computer-based assessment. *Strides in Development of Medical Education*, 15(1), e86326 <https://doi.org/10.5812/sdme.86326>.
- Hanifi, A. (2019). Electronic evaluation: Facts, challenges and expectations. *The Online Journal of New Horizon in Education*, 9(4), 268-271. www.tojnet.net
- Isiwu, E., & Isiwu, B. N. (2021). Capacity building needs of lecturers of library and information sciences in utilizing electronic assessment for grading and documenting students' performance scores in universities in Abia state. *NAOAT Journal of Educational Development and Productivity*, 5(2), 1-12.
- Iyang, E., & Mngutayo, J. (2018). Required skills and competences of librarians for effective software application and use in contemporary libraries in Nigeria. *Library Philosophy and Practice (e-journal)*, 2092. <https://digitalcommons.unt.edu/libphdprac/2092>
- Kizlik, B. (2014). *Measurement, assessment and evaluation in education*. An unpublished handout
- Marina, A. (2015). Information and communication technology and its role in educational assessment. *Englisia*, 3(1), 23-37
- McKim, B. R., & Saucier, P. R. (2011). An Excel-based mean weighted discrepancy score calculator. *Journal of Extension*, 49(2). <https://www.joe.org/joe/2011april/tt8.php>
- Mukhari, S. S. (2016). Teachers' experience of information and communication technology use for teaching and learning in urban schools. (Unpublished doctoral dissertation), University of South Africa.
- Nitko, A. J., & Brookhart, S. M. (2011). *Educational assessment of students*. Pearson
- Nwokocha, E. G. (2015). *Lecturer perception of modern technology usage for the teaching of business education courses in Nigeria*. International Conference on 21st Century Education, HTC Dubai Men's College, UAE, Nov 2015.
- Okoli, B. E., & Wagbara, S. O. (2016). Use of new technologies in the instructional delivery of business education: The perception of business educators in tertiary institutions in Rivers state. *Nigerian Journal of Business Education*, 1(3), 99-110.
- Paul, R. (2020). Evolving e-based evaluation system: Issues and challenges. *International Journal of Creative Research Thoughts (IJCRT)*, 8(11), 2974-2979. www.ijcrt.org.
- Petrisor, M., Marusteri, M., Simpalean, D., Carasca, E., & Ghiga, D. (2016) Medical students' acceptance of online assessment systems. *Acta Medica Marisiensis*, 62(1), 30-32.
- Saratkar, A. N. (2019). An article on importance of software technologies in business and management science. *International Journal of Engineering and Applied Sciences and Technology*, 4(4), 291-294.
- Serchen, (2024). *Best exams software in 2024*. <https://www.serchen.com/category/best-exams-software-in-2024>.
- Shaheen, M. N. K., Shah, N. H., & Naqeeb, H. (2019). The use of ICT for assessment and evaluation. *International Journal of Distance Education and E-Learning*, 4(1), 17-28.
- Software Suggest, (2023). *The 20 best competitors and alternatives to Just Exam*. <https://www.softwaresuggest.com/20-best-just-exam-alternatives-and-competitors/>
- Uvie, O. M. (2021). Teachers' competencies towards the implementation of school-based assessment in secondary schools in Edo state, Nigeria. *International Journal of Education, Learning and Development*, 9(2), 51-59.