

DIRECT OBSERVATION AS A METHOD OF ASSESSMENT AND INSTANT FACE TO FACE FEEDBACK FROM GENERATED AND PRINTED COPY OF BASIC LIFE SUPPORT (BLS) DEVICES FOR UNDERGRADUATE PHYSIOTHERAPIST STUDENTS OF CARDIFF UNIVERSITY UNITED KINGDOM.

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ABSTRACT

For ensuring effective teaching and facilitating learning during students-patient interaction, a valid assessment needs to be adopted. Many assessment mechanisms exist to evaluate students' knowledge and skills of Nursing/medical students, including two-way mirrors, close-circuit audio-video and observation. Providing students with instant feedback is a key to successful learning. Level one undergraduate students of Cardiff University, United Kingdom were assigned to carryout basic life support (BLS) procedure using manikin whilst the student-teacher employed **direct observation method (DOM)** as a tool to evaluating students' learning competencies. The supervisor monitored the student-teacher who organized the one-hour task to assess the students. Professional driver's guidelines of Quality Assurance Agency, Nursing & Midwifery Council and National Institute for health Care Excellence, together with learning theories including constructivist, behaviouristic and humanistic were considered. The assignment is **aimed** at examining students' competencies using one-hour assessment and BLS generated and printed copy of feedback. The assignment was analysed in three phases viz: direct observation, accuracy and effectiveness of the BLS devices and instant feedback stage. The **outcome** indicated that **DOM** is a good assessment tool used in evaluating varying degrees of students' Knowledge, Attitude, Motor skills, Structure (logical skills), Novice, Advanced Beginner, Competency, proficiency, and expertise at different stage of learning.

KEYWORDS: Direct observation, method of assessment, BLF, feedback.

INTRODUCTION

Worldwide, it has been recognised that the provision of healthcare delivery is one of the vital roles of health professionals especially Nurses (Lyngkaran et al., 2015), and an integrated part of healthcare services (Langins et al., 2015). Moreover, from the perspective of healthcare systems, healthcare delivery can only be executed through the efforts of healthcare educationalists (Ratzinger et al., 2015) who play a significant role in facilitating learning and teaching, irrespective of whether a teacher-centred or student-centred approach is used (Summer et al., 2015). This is because effective teaching and appropriate assessment among healthcare professionals yield to holistic care delivery by nurses, which in some circumstances renders care directly to both individuals, groups and communities equivalent to that of the physician (Ramm et al., 2015; Temido and Dussault, 2015), thereby maintaining the standard of the nursing profession (NMC, 2015).

In healthcare professions, assessment is a mandatory process, which began in the nineteenth century. Since then, medical professionals require their 'trainees' to be examined thoroughly and up-to-date assessment/screening of the new applicants starts at the entry point of admission (Stuart, 2013, pp.2-3). Recently, the vocational roles of nurse's educators have gone beyond those of last century, and nowadays well-trained qualified nurses serve as teachers, supervisors and student assessors (Nicklin et al., 2000). Also, the progression of nursing and midwifery today has moved the nursing profession into the higher educational sector (Howard et al., 2003). For example, in the United Kingdom, the provision of high-quality care comes not only from the NMC but also from other responsible agencies that give support, such as the Quality Assurance Agency. These agencies design activities through the educational sector for higher education to provide effective teaching, facilitation and learning, together with all forms of assessment that result in acquiring adequate

knowledge, skills and experience for healthcare personals, including nurses, to use in providing holistic care (QAA, 2015). Furthermore, Ossenberget al. (2016) recommended that effective tools of assessment should be used not only for nursing students but also in the workplace in order to attain competency. Also, poor assessment usually affects the standards of the profession, which also contributes to ineffective care of patients (NMC, 2015). Therefore, as stated by one philosopher ‘assessment will remain with us from the cradle to beyond the grave’ (cited inStuart, 2013).

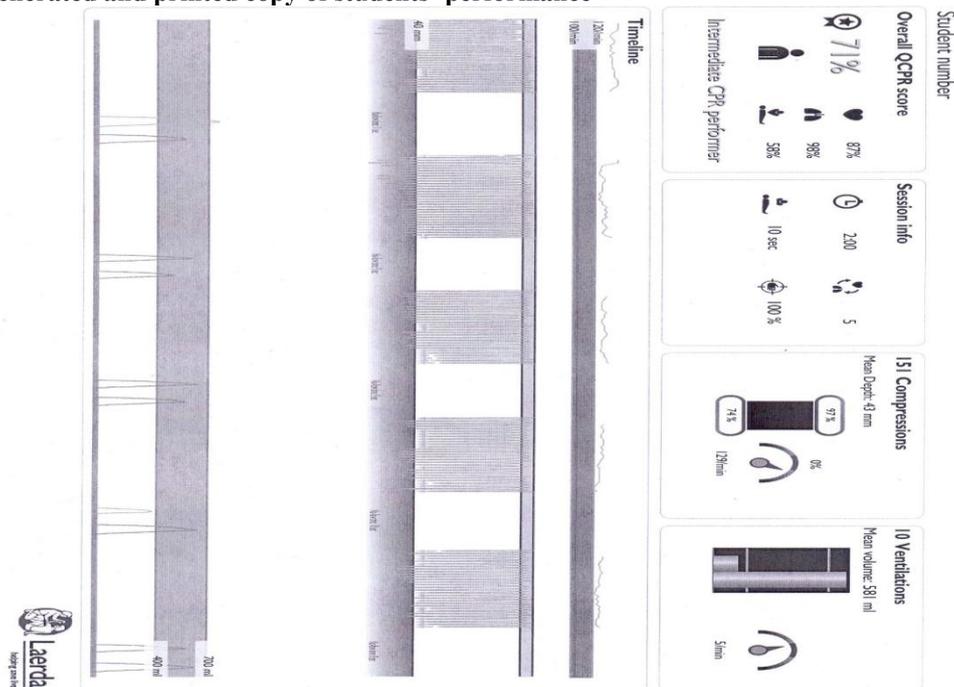
From the perspective of health practitioners, together with nurses and midwives, assessment usually goes along with the teaching processes, which occur after or during the context of teaching, in order to achieve the learning need (Bastable, 2014). In view of this, constructivist as well as behavioural learning theories have been used during the practical session of Basic Life Support, which was introduced with clear aims and learning outcomes. Using behavioural learning theory serves as a building block from the student’s previous experiences (Hughes and Quinn, 2013). Open-ended questions were posed for various reasons, including assessing the level of learning, thinking (brain storming), assumption challenges, gaining students’ attention, engaging and also encouraging participation during the session (Gould, 2010). The use of these approaches also provides deeper learning rather than surface learning (Gopee, 2010). Furthermore, practical sessions were successfully delivered, before demonstration of the scenarios by one of the facilitators using a manikin connected to a computer, thereby showing the results on screen before allowing two students to come into the room to carry out the practical session on Basic Life

Support. The facilitator then assessed them in the form of direct observation during the scenario (Gopee, 2011), together with verbal feedback using a recorded and printed copy as generated by the devices for each student.

The study is a critical reflection on one-hour student assessments on basic life support. It discusses and analyses in detail direct observation of the students during the scenario, the effectiveness of the devices in terms of accuracy, strengths/weaknesses and post-scenario discussion in the form of face-to-face feedback, taken from the printed and generated copies from the devices connected to a manikin. The subjects are level five undergraduate physiotherapists. Therefore, this study will be underpinned using professional drivers, which include guidelines and policies with regard to basic life support assessment and effective feedback, including those recommended by the National institute for Health and Care Excellence(NICE, 2015), the Quality Assurance Agency (QAA, 2015) and the Nursing and Midwifery Council (NMC, 2015). Constructivist and behaviouristic theories (Miller and Benner, 1984)are used, together with seminal work from recent educational articles and literature for the purpose of achieving this case study and meeting the requirements of the student learning needs.

The study has been categorised into three phases, as follows: provision of direct observations as a method of assessment (phase one); the effectiveness and accuracy of the electronic devices in terms of assessment and generating printed copies (phase two); and provision of face-to-face feedback after BLS scenario (phase three) by the facilitator.

BLS device generated and printed copy of students’ performance



Provision of direct observation as a method of assessment during the scenario of bls.

There are various forms of feedback and assessment reflections. Although some do not require an award in the form of a pass or a fail, a decision is still considered significant as it involves assessing someone, a patient-related assessment, which deals with gathering patient-related information and identifying both potential and actual problems. Student assessments deal with information collected based on evidence and the learner's abilities in terms of competencies (Nicklin *et al.*, 2000, p.110; Gopee, 2011, pp.173-174; Hughes and Quinn, 2013). In addition, they also highlight the most common skills used in assessing the learner's competences, which include interviewing, questioning, and direct observation, which is the main point of consideration, and suitable methods with regard to basic life support.

According to Atherton (2013) direct observation is the most recognizable and commonest methods used in assessing students by watching him/her performing the practical skill for either awarding or non-awarding purposes. For example, the Basic Life Support Scenario. However, actions that usually begin at the starting point of Basic Life Support, such as how the student approaches the manikin, application of the three 'S's (shout, safety from danger and simulation) are not detected by the devices. Others include application of the student's previous knowledge/experience of first aid management, from theory to practice on the connected manikin, together with significant points omitted by the student during the BLS scenario. These are all taken into consideration through direct observation by the facilitator.

Several texts highlight fully the different forms of assessment. The most suitable method is direct observation due to its validity and reliability, especially in work-based or practical skills that deal with assessment of the learner's competencies before evaluation by the responsible personal such as a mentor, facilitator or assessor (Gopee, 2011, p.59). However, some of the limitations of this method include the presence of the assessor or mentor, which can sometimes affect the student's performance or cause nerves to play a part, as well as observer subjectivity. Indeed, it is often of paramount significance to use a rating scales or checklist as a specific criterion during assessment to serve as a guide to the assessor/observer (Hughes and Quinn, 2013, pp.396-397; Gopee, 2010, pp.94-95). Also, concerning BLS, the checklist on the student's characteristics in terms of behaviour, attitude and so on varies between adults and children. Therefore, in order to ascertain and assess the undergraduate physiotherapist student using behaviouristic as well as humanistic theories as they deal with motor skills, the observer must use good criteria to assess the following from each student, as shown below, in terms of Knowledge, Attitude, Motor and Structure (KAMS) (Hughes and Quinn, 2013).

Knowledge: The first step of assessment, which is carefully observed by the assessor. In this context, the student's practical skills were assessed based on their knowledge and understanding of the subject matter (Basic Life Support).

Attitude: At this level, the facilitator watches the learner's performance during the task/skill of basic life support.

Motor: At this stage, the responsibility of the assessor is to observe the student's motor/technical skills during a demonstration scenario of BLS using a manikin in the application of their first aid knowledge.

Structure: With regard to a BLS scenario, the assessor observes the systematic and logical manner of approach of the student to the manikin as the student deals with a shout for help, together with dialling the cardiac arrest team number (2222), the emergency services (999), the community, safety from danger and simulation. Therefore, the abovementioned KAMS are considered by the facilitator during observational methods on BLS and the noticed missed points are taken into consideration. The student is fully informed on the provision of face-to-face feedback.

In the healthcare profession, researchers usually quote one of the most popular theories of Patricia Benner (1982). This theory fully discusses the concepts of learners in meeting competencies 'from Novice to Expert', which comprise five distinct stages. However, in this context, with regard to a BLS scenario among physiotherapist students, the stages are as follows:

Novice Stage: Level one physiotherapist students with no experience of clinical simulation. All they need are the principles and rules that govern behaviour. Student may perform the tasks/skills, but unsuccessfully, therefore needing guidance from the facilitator.

Advanced Beginner Stage: As the name implies, unlike the novice, the learner has gained experience from the BLS being demonstrated by the facilitator. At this stage, students perform the skills with some corrections by the facilitator.

Competent Stage: According to Benner, a maximum time is need for advanced beginners to become competent. Therefore, enough time is given to these students to practice the scenarios with repetition before their assessment.

Proficient Stage: This stage is not applicable to the students because it deals with long periods of working in a specific area, leading to Expert level, which is the last stage according to Benner.

Expert Stage: Deep understanding is the main characteristic of this stage. Therefore, Benner highlights

that not all learners from the Proficient stage become Experts.

According to Mehay and Burn (2009), the Miller theory discusses a pyramid that comprises four stages that may be used to assess the learner's knowledge, skills and attitude in attaining competencies. In view of the abovementioned, Mehay and Burn (2009) suggest that another level of awareness comprises two stages: 'heard of' and 'knows about'. These may be used to support the first level of the pyramid because they deal with gathering information or facts. Moreover, the two levels of the pyramid starting from the bottom, 'know' and 'know how', can be accessed easily using simple tools of assessment such as verbal or written tests. However, for the practitioner to demonstrate competencies in practical examination, OSCE or simulation, the third level of 'show how' is the best method to use through direct observation. Whereas, the top stage of the pyramid, 'does', is only applicable in the actual workplace by practitioners. However, in order to compare and contrast between both Benner's and Miller's theories with regard to BLS practical sessions among level two physiotherapist students, both theories are applicable using direct observation methods. But Miller's theory is more applicable at stage three, 'show how'.

The systematic review of Wu *et al.* (2015) shows that there is a need for maximum support and guidance for both receptors and students from the clinical instructors and academics in the process of assessment, irrespective of either formative or summative type. As highlighted by Ličen and Plazar (2015), clinical competencies in nursing are the key concepts of consideration and, therefore, have to be at the forefront of every registered nurse. This can only be achieved through proper assessment of nursing students as a result of promoting the quality of care given to the patients and maintaining the standard of nursing education (Klemsová and Žiaková, 2014). Likewise, the study conducted by Helminen *et al.* (2014) indicates the significance of effective assessment in relation to good clinical practices among student nurses, although they recommend that further research is needed among nursing students and, more specifically, with regard to final clinical assessment in order to maintain the calibre of nursing education in Finland.

The evidences which suggest the effectiveness in providing proper assessment and feedback among these level one physiotherapist students on BLS scenarios include promotions of student's capabilities specifically for those with less ideas of where to start as "novice" and to increase the level of their performance in their future studies/exams (Bandiera *et al.*, 2015). Similarly, higher achievement and maximum contributions toward care as rated by the student nurses are associated with high-quality positive feedback, which is usually given politely, in a free atmosphere, and in a logical and motivational manner, because the aim is to fill in the

gaps of the omitted concepts (Plakht *et al.*, 2013, pp.1267-1268). Likewise, in the action research conducted by Mansour (2015) at a British university among first-year management students, tutors used an essay feedback checklist to compare attitude for the proper use of assessment tools. The result indicated that the tools were significant to the students with positive improvements after the feedback interactions with tutors. In addition, when outlining the students' essay feedback expectations, the following were gathered from the learners: timely feedback, specific/personal feedback, constructive/detailed feedback, as well as motivational feedback.

The Effectiveness of Electronic Devices In Assessment And Provision Of Feedback In BLS

The delivery of healthcare is time consuming and, therefore, the health professional needs to advocate competencies in achieving goals (Howard, 2003). These competencies can only be achieved by identifying the learning needs and filling in the gaps, which include lack of skills/experience, knowledge and attitude (Bastable, 2013, p.106). The abovementioned can be gained by proper assessment, which is the estimation and scope of knowledge/experience in terms of its value or worthiness and necessary approach in giving feedback, which is the responsibility of the mentor in the role of awarding credit and making decisions on whether the student is confident and competent in carrying out the task independently (Gopee, 2013, p.173).

From the educational perspective, assessment is built upon what the student already knows or has insight into (Howard, 2003). It explains what learners consider as significant, whereas feedback is any concept/idea or process that increases and promotes the student's learning activity, which is usually built on written remarks or verbal feedback (Hughes and Quinn, 2013). It comprises an opportunity of identifying the teaching needs, thereby adjusting the teaching styles and methods (Gopee, 2011), a collective process that relates the student's needs and achievements (Stuart, 2013). Recently, the significance of proper assessment and effective feedback have increased remarkably in healthcare systems where automated devices/machines are used in assessment and the provision of feedback in basic life support without instructors (Wik *et al.*, 2005; Mpotos *et al.*, 2013; Tubasi, 2015). Moreover, research has shown the efficacy of these sophisticated devices based on accuracy and effectiveness in the assessment and provision of feedback during or after the scenario. The connected manikin usually generates a printed copy containing the following: the student's name; accuracy in hand positioning, with the heel of one hand over the other 100%; strengthening the two arms; numbers of 30 chest compressions at normal superficial/depth; two rescue breaths as normal; interval between chest compressions; time interval, which is usually two minutes each; and number of cycles within two minutes (see Appendix, Figure 1).

Before the test scenarios, the manikin was tested and connected to the software by the facilitators in a well-prepared room with enough space for two manikins to be placed on the floor in order to achieve a proper chest compression. During the scenario of Basic Life Support, the most common method used in assessing students was direct observation because it demonstrates how he/she applies the knowledge and skills of 'theory to practice'. Also, feedback given after the scenario was considered valid, authentic, reliable and sufficient (Howard *et al.*, 2003). Factors that hinder the effectiveness of the feedback were taken into consideration, including performing CPR using a manikin on the floor/backboard during compression. This is because, when carried out on non-rigid surface such as bed or mattress, the depth of chest compression is altered, as highlighted in the study by Perkins *et al.* (2009), which indicated that a chest compression depth using a manikin on the floor is within the average target range of 45%, on a bed with mattress 26.2%, when a backboard is used 95% and on a narrow board 95%. Likewise, Nishisaki *et al.* (2009) state that when CPR is performed on a non-rigid object, there may not be enough compression, leading to over/under-estimation, for instance, by 28% using an intensive care bed, and by 10% on a stretcher. Therefore, the BLS scenario with regard to the session was performed on a backboard using a manikin in order to obtain accurate feedback from the available devices as expected. This is similar to the RCT study conducted by Truszwesky *et al.* (2015), which indicated an increase in the feedback result after the completion of the scenarios on true cardiopulmonary resuscitation using a manikin, which shows the effectiveness of the devices in the provision of feedback. Therefore, they recommended the need for further research in order to confirm the result in clinical areas. Likewise, in a voice and video feedback carried out among 213 medical students by Mpotos *et al.* (2013), the findings showed a very good approach in terms of efficacy and accuracy in both assessment and provision of feedback from the devices.

Provision of Face-To-Face Feedback From The Printed Copy After The Scenario

The Quality Assurance Agency (2011) highlighted the significance of the provision of oral feedback to the student toward the progress of their learning, either individually or in a group basis, as cited by Hughes and Quinn, 2013, p.292). Formative feedback is usually given to students by the mentor/assessor either at the end of the scenario or on a continuous basis, depending on the type of assessment, for the improvement of the learning needs (Gopee, 2011, p.170). Similarly, giving a student feedback is a vital component in achieving the expected goal in education (Schertel, 2012). According to Bastable (2014, p.90) feedback can either be extrinsic or intrinsic, and the extrinsic type of feedback consists of both knowledge of the performance and knowledge of the result. In view of the above, the multifaceted role played by nursing educators in providing and shaping the learning needs through effective face-to-face feedback to

the student also serves as a guide in meeting the competency requirements, thereby maintaining the standards of the profession (Spencer, 2013). Similarly, for future leaning to be achieved and for successful growth, clear expectations are needed in order to support the novice instructors (Erin, 2011). Therefore, with regard to this assignment, effective face-to-face feedback was given in order to fill in the gaps noticed through 'direct observation as an assessment method' (Stuart, 2013), during the scenario of Basic Life Support by considering the Benner theory (that is, application of theory to practice). In addition, due to the assessor understanding the assessment criteria in the provision of feedback, after consent was given by the student, the feedback process was also explained. This is because some students have inadequate experience or less guidance on how to receive verbal feedback or become involved in the feedback processes (Ellis *et al.*, 2015). Also, positive and motivational words in providing oral feedback were considered and used because lack of clarity or the use of demotivating comments usually create confusion/emotional responses in students (Schartel, 2012), thereby affecting the process of their future learning. As such, simple language was used, with actionable as well as constructive feedback, avoiding the use of unfamiliar vocabulary (Hughes and Quinn, 2013). However, Stuart (2013, p.124) mentioned that an effective face-to-face feedback should be given in a warm and conducive environment using simple terms, with good eye contact, with maintenance of open-ended questions by the assessor and the provision of relevant answers when asked by the student in a polite and encouraging manner. Therefore, all of the abovementioned points were considered and maintained after the scenario of Basic Life Support in the provision of face-to-face feedback.

A randomised controlled study was conducted by Ali *et al.* (2012) among pharmacy students, and was categorised into three subdivided groups: video feedback, verbal feedback and a third group with no feedback. After the data collection, the result findings indicate a positive improvement with regard to their profession due to effective feedback received by the students. However, there were some limitations encountered during this study. Moreover, in another study conducted among a large group of first-year psychology students using a qualitative method by Ludvigsen *et al.* (2015), the survey findings showed 149 students with the highest positive correlation, indicating an increase in their coursework marks compared to the previous results due to the effective feedback received. In view of the above, Klimova (2015) states that feedback is considered important, irrespective of how it is given, provided that it is given effectively, because it promotes both students and professional growth.

In addition, several educational literatures, texts and articles highlight the useful guidelines that play a major

role in giving and receiving effective feedback, some of which include the following actions and their rationales as advocated by Gopee (2011, pp.108-109) and Hughes and Quinn (2013).

ACTIONS	RATIONALES
The verbal feedback was given instantly after the Basic Life Support scenario.	To alleviate misconceptions and uncertainty that may be harboured by the students.
Face-to-face feedback was given in a private, free atmosphere within maximum time.	To maintain student dignity, feeling free, and detailed not partial feedback was given.
Effort made by the student during the BLS scenario was praised during the oral feedback before pointing out the student's weakness.	Praising students usually reinforces correct practices within the profession because commencing with weakness discourages students, thereby not concentrating on the points of correction.
Good feedback is constructive in nature, motivational and sensitive to act on, with the opportunity for the student to ask questions.	This is because assessment serves as a medium to discover future learning needs, and all questions raised by students were answered clearly.
At the final point of the oral feedback, the student was given a strong positive tone on both feedback and feedforward before finally documenting and signing with the date, as provided on the assessment forms.	The rationale of this point is to motivate and encourage the student for future learning and to ensure all the important points discussed are recorded for evidence purposes.

Note: Each paragraph of the action on the left corresponds with the rationale on the right

CONCLUSION

This assignment critically explored and examined a one-hour assessment and provision of feedback among level one physiotherapist undergraduate students on Basic Life Support. However, for the purpose of this assignment and to achieve the aims of the session, professional driver's guidelines from the QAA, the NMC and NICE, together with learning theories such as constructivist, behaviouristic and humanistic were all considered. Also, the assignment was analysed into three phases as discuss bellow.

In phase one, the author of this assignment fully discussed the provision of direct observation as a method of assessment in BLS. In this phase, literatures and seminal texts were used together with suitable theories such as Miller and Benner to assess the following characteristics from students' knowledge, attitude, motor and skills using direct methods assessment.

The second phase of this assignment highlighted the accuracy and effectiveness of the devices in terms of assessment when the connected manikin is touched and the provision of feedback from the generated and printed copies from the devices.

In this phase, the provision of instant feedback from the devices generated a printed copy together with omitted points noticed by the facilitator from the beginning of Basic Life Support from each student. In addition, each student's privacy was maintained, using simple and clear information, recommended guidelines and motivations in order to meet the student learning needs in achieving competencies.

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