A Survey for the Evaluation of Faculty Trainings on Designing E-courses for the University Faculty Members' Skill Enhancement

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ABSTRACT This research is an outcome of trainings conducted and their implementation to use content authoring tools in e-learning environment. Male and female faculty members from Saudi Arabia's Northern Border University (NBU), with varied levels of awareness and exposures into e-learning system, represented different colleges and campuses. They were encouraged to create and practice authoring tools after the advanced trainings. Dramatic improvement was observed among the participants to develop resourceful courses. Evaluation was done to record improvements for changes in the competency level. This paper assesses how trainings changed their awareness level and skills to use designing tools to develop coursers for e-learning. They found it as an innovative tool to create the courses. This paper highlights the general awareness and skills of faculty members towards e-learning and course designing tools. It assesses awareness and skills of users for their adaptability towards course designing and the use of respective tools after trainings.

INTRODUCTION

Northern Border University (NBU) in the Kingdom of Saudi Arabia is in the verge of going online to offer e-courses to its students. It sought skilled faculty to design e-courses for that purpose, and kept in consideration important factors like organizing workshops to encourage its faculty from all campuses to undergo trainings to hone course designing skills. Trainings were thus conducted to train the faculty members on Lectora course authoring tools and design e-courses. This paper investigates the new dimensions of e-learning content authoring tools which faculty members use for their students. Such tools have been deployed in all campuses and colleges of NBU.

The research is valuable in this context that it evaluates the faculty skill enhancement through surveys of faculty trainings to designing e-Courses for higher education. The evaluation is thus meant to highlight the training strategies to further simplify e-learning as an option which can be easily adopted by other universities as well. Easy affordability of technical resources to tool procurements proves helpful to undergo such experimentations and obtain faster results.

Such trainings further eased NBU's academic need fulfillment with the faculty members enhancing skills in their pursuits to teach students. Thus university implemented e-learning academic environment at all levels and preferred Blackboard Learning Management System (LMS) for this purpose. To achieve this motive, exceptional content materials were required, thus, faculty members were trained in Lectora course authoring to enhance faculty skills to design the courses. It gave a new boost to e-learning platform at NBU with its faculty members receiving adequate training to make them familiar with the content authoring tools.

E-learning and Content Authoring Tools

Rapid innovation in e-learning in the recent past was witnessed in the use of latest authoring tools besides customized training programs. Faculty members actively involve Instructional Designers (ID) and Multimedia Developers (MD) to design the curriculums for the various academic programs (Giacumo and Conley 2015). According to Wong and Sixl-Daniell (2017), fast advancements in Information Technology sectors directly affected the overall communication including e-learning to greatly affect the teach-

ing and learning approaches throughout the world.

Kumar (2016) studies that lecturers and instructors can save time, energy and resources through easy communication with e-learning team as Subject Matter Experts (SMEs), and through the use of digital visualization tools to Internet which attained irrefutable impact after the Information Technology boom. The concept of electronically-based distance learning solutions had its manifold growth once World Wide Web dominated in the mid-1990s to literally narrowing all distances.

E-learning supports a strategic approach to create the content-based, single learner, self-paced learning objects besides offering other notable opportunities. There is still lack of understanding to sequence the learning activities that involve group of learners to interact within a structured set of collaborative environment. Faculty members use such sequences for the easy re-usability purpose (Dalziel 2003).

Need was felt to introduce content authoring tools' availability at NBU as well. Lunce (2011) suggested extensive use of multiple software packages if educators are willing to create more elaborate digital stories as course contents. It involved both costs and technical expertise. Content authoring tools like Captivate, Camtasia and Flash are the select few out of many commonly available ones. According to Chauhan et al. (2016), designing is best understood in the context of sketches, descriptions, definitions, planning and research in the organized structure for different layers of evaluations and through implementing the applied learning tools in that process.

Hossein et al. (2011) researched that e-learning content authoring tools software were designed to create e-learning curriculum which comprised of texts, audios, images, videos and animation to organize the pages to simplify contents for learners. Instructors could easily track the learning process and appraise the student progresses.

Lilly and Swamydoss (2017) describes the purpose of content authoring for modern digital classrooms easing multiple things including support to faculty to publish the assignment exams and lectures and easy connectivity with students through multimedia and Internet based resources available before them.

After evaluating many content authoring tools to assess the learning level of its faculty, NBU planned for customized training through considering the efficiency level and variegated background of faculty team. Dubinsky (2014) researched ongoing institutional repositories for disciplinary contents through faculty participation. NBU observed the role of Lectora for e-learning in the context of other worldwide universities to manage their academic schedules. Lectora is beneficial to design e-courses through the use of several latest media tools. Its uniqueness lies in pre-development, development, evaluation and revision which are effective and assure for guaranteed interactive learning solutions (Faruk 2014). According to a research by Piña and Harris (2006), Lectora develops interactive instructional modules for their easy integration with online courses through Blackboard and WebCT. They therefore supplement systematic course designing and Instructors start teaching students through e-learning medium with its simple drag and drop option. It thus proves helpful for even a non-programmer to build interactive multimedia contents.

Gahungu et al. (2006) pointed out that experts must propagate designing online learning tools for faculty members to support in the content authoring solutions. NBU faculties were thus trained into groups to keep them abreast of Lectora authoring tools to design contents. The multi-phased trainings were from basic to online teaching and offline availability of contents on LMSs. It developed interest in the participating faculty members to use latest technology tools. The researches further highlighted the reason behind some faculty resisting to explore online tools keeping in consideration their limited previous exposures in such tools. In fact, engaging them in the activities which seemed foreign to them would often prove intimidating.

Content Authoring Training for Faculty Members

NBU initiated hands-on faculty training for e-learning via Blackboard. Need was still there to hone faculty skills in content authoring. It was planned for e-learning system deployment in university's all campuses for awareness towards technology tools and available resources in the light of the prior trainings faculties obtained. Proposed trainings primarily focused at:

- Creative titling
- Texts, graphics and media tools
- Tests and quizzes
- Publishing titles

Beginning with the introductory elements of course designing, NBU trainings made the faculty abreast of briefs on the authoring tools and their benefits at the initial stage. Adenowo and Adenowo (2016) studied the importance of thoroughly systematic course authoring tools trainings and their significance in e-learning. Such steps ease for the faculty members to use the content authoring tools to obtain the desired results they seek. Pivec et al. (2006) studied the impact of adaptable e-learning and content authoring support through adequate authoring tools. It could be possible through making authoring a structured process.

E-learning in Saudi Arabia

Deanship of e-Learning and Distance Learning (DEDL) at NBU fulfills this university's e-learning needs in Saudi Arabia. Mirza and Abdulkareem (2011) studied that 'in the 2007 nation-wide study conducted by Saudi Arabian Communications and Information Technology Commission of over 7,500 individuals revealed that only forty-nine percent of the society members were aware of e-learning, while only five percent of those who were aware of it had ever personally used it!' This finding presented low percentage of acquaintance with e-learning by the Saudi Arabian universities at both academic and administrative levels which included government run and private educational institutions. Al-Harbi (2016) studied the faculty attitudes towards and motivation for Virtual Learning Environments (VLE) in the Saudi Arabian universities.

Moukali and Saeed (2017) present the current changed scenario in Saudi Arabia in their study on interactive learning management system that has overhauled manifold in all Saudi Arabian universities in general and Jazan University in particular. All universities now either practice or in the verge of welcoming e-learning. Learning systems not focused to deliver traditionally in the classrooms but rather with electronic media tools are integral part of e-learning (Mahmoud et al. 2016). Most universities deploy course management systems like Blackboard, Desire2Learn, Moodle, Sakai and WebCT for successful e-learning operation.

Training Evaluation

NBU's evaluation of faculty trainings to design eCourses was primarily meant to fulfill its content creation needs. Divided into multiple groups, university's faculty members were trained on Lectora for its use in educational purposes. It could cater to the needs of high level content creation plans which other leading universities are aspiring for. Faculty members at this university understood the importance of e-learning tools how they could effectively enable the communication network between them and their students for a drastic change.

In total, 412 faculty members from all NBU campuses and colleges participated in trainings, organized in groups. Divided into two phases, these trainings provided general introduction about Lectora course authoring tools in the First Phase as Basic training while Advanced trainings were meant to resolve the issues at advanced stages of course authoring.

Alhabeeb and Rowley (2017) studied the critical success factors through evaluating faculty trainings in the Saudi Arabian universities. They point out that with the evaluation of trainings for course designing methodologies, the purpose of trainings is well understood. Alabaddi et al. (2016) identified potential obstacles to use blended e-learning in higher education institutions in the context of training the faculty members.

Notable factors in any type of evaluation are that the effects on individuals or groups are rationally evaluated to obtain results. Feedbacks are essential for awareness about the progress levels and also to evaluate the crucial aspect to judge confidence level of learners. Trainings are evaluated to understand whether they are truly effective for developmental purpose to benefit individuals or groups. Laack et al. (2017) discuss training evaluations in the context of their benefits as well as identifying barriers to focus on the potential solutions.

This researcher's survey to evaluate faculty trainings in NBU to design c-courses meant to enhance the skill development of faculty members thus focused on the following aspects:-

- How effectively trainings fulfilled learners' needs and objectives
- Do the trainings brought desirable transformations, and up to what extent
- What focused knowledge or skill was imparted during the trainings

- Was it evaluated to know learners' skill enhancement for their responsibilities
- Involvement in the planning and design of the training programme where possible
- How successfully were trainings planned for learners' involvement

Sole aim of the evaluation was to ascertain how much interest faculty members take for their active participation in the course designing training programs and how impactful they remain in their overall skill enhancement.

Evaluating trainings thus ease making judgment on their personal action plans from implementation to conclusion. They also ease putting the theories into practice by involving team members in their hierarchies. Such steps augur to develop interest in trainings and also ease their evaluation processes. It makes the monitoring of learning process easy for which learners are to be actively involved in the evaluation process.

By involving the subjects in evaluation an evaluator receives comments, feedbacks as well as their concerns during the trainings meant for skill enhancement. Trainees are made to understand the value of the trainings they receive through proper evaluation process.

Objective of the Study

The objective of this research to evaluate trainings is based on the four important questions which the researcher had highlighted while conducting it:
- Whether the researcher witnessed any change in the awareness level of NBU faculty about designing tools after Basic and Advanced trainings?
- Whether the researcher witnessed any change in the skills of NBU faculty about course designing tools after Basic and Advanced trainings?
- Whether the researcher witnessed any change between Male and Female NBU faculty for their awareness level about designing tools after Advanced trainings?
- Whether the researcher witnessed any change in the skills of Male and Female NBU faculty about the designing tools after Advanced trainings?

The research had this objective to evaluate the current status of NBU faculty members for their skills and awareness towards the course designing tools, especially Lectora prior to their final trainings. It was also aimed to learn the status of university's male and female faculty for their renewed perceptions towards content authoring tools after the final training.

It focused to know status of male and female faculty members for the differences in perceptions towards designing tools, especially Lectora once the final trainings were concluded.

Literature Review

An entirely methodological approach, training evaluations are effective solutions to measure the learning outputs. Through evaluations, one aims to obtain accurate outcome as benefits which trainings offer to the professionals to develop skills and to enhance that further for an excellence in the on-the-job performance level. Indeed, training evaluations are ultimate assessments of specific trainings conducted with such purpose, and thus evaluated if an attempt proved successful as desired or a failure, while giving the results. It has similar connotation in e-learning in which trainings meant to design contents to enhance learner skills are thus overviewed.

During the content authoring tools training at NBU, this researcher observed several factors including why faculty required regular trainings in content authoring. NBU chose Lectora to train its faculty from all campuses, colleges and departments, which represented male and female campuses. Once trainings concluded, the researcher tried to find out the effectiveness of the training organized.

Papanikolaou et al. (2016) highlighted the appropriate selection of technology to be used to train the faculty members. Technology plays pivotal role to make the concept of virtual classroom a reality and to enable an effective communication for the collaboration between all parties.

Universities must develop strategies for faculty members in multiple interest areas to prepare contents by the use of numerous available tools. University of Oviedo developed new model of training projects in education and social work areas to evaluate the development of basic competencies (Álvarez-Arregui et al. 2017). They should be monitored by the experts in follow-up steps to craft the skills and to provide resources and freedom to limit the courses to design for the specific number of participants meant for. Let them also decide the class sizes and similar

other options. Undoubtedly, e-learning implies several latest teaching and training delivery methods. Rabah (2016) indicated for its greater impact in the education sector at the worldwide locations.

Akkurt et al. (2014) evaluated in a study in Turkey that each training or project required proper evaluation to judge whether they would fulfill the goals of specific trainings or projects or not. They evaluated their education project Education and ICT Network (EBA) in Turkey in the context of e-contents developed for the FATIH project.

According to Torrington et al. (2005), the evaluation of faculty trainings could bring satisfactory or unsatisfactory results depending upon the specific organization concerned. They researched that the demonstration of trainings being evaluated has causal relation with an organization's values and ideals. It was further affirmed by Raymond (2008) that trainings persistently increase the level of clarity as if a facilitator for a change. Furthermore, such steps are highly beneficial for the organizations to achieve their strategic objectives without fail. Alvarez et al. (2004) described the effectiveness of trainings as important variables which are most likely to influence the results of training conducted on various occasions and stages during the professional developmental process to bring a new change.

Nesbitt (2004) studied the effectiveness of evaluating training for the identification of their true value through assessing the techniques used to make the training programs thoroughly developmental and productive. Evaluations also help to understand an organization's training resources. Likewise, Tews and Tracey (2008) described the training climate as a short-time variable but remain highly influential to groom the individuals for their formal nourishment to delve into the roles that ascertain achieving learning objectives of an organization.

They further evaluated that trainings play crucial role in the work-related factors whose direct influence correlated with the training conducted. Their effectiveness can be determined with the success or failure parameters to judge how much effective any formal or informal training can prove.

During this research, framework was also developed to evaluate the ongoing e-learning practices in NBU Deanships and Colleges. It explored effective course management solutions through Blackboard by considering the prime needs of course authoring tools. Dað et al. (2014) suggested for the perceived use of authoring tools by keeping in consideration their variegated needs. Involving the SMEs besides technology tools usage pave the way for the desired outcomes.

Branson (1975) designed training programs for the US military and named that Interservice Procedures for Instructional Systems Development (IPISD) model. It included key contents of analysis; design; development; implementation and control for an effective empowerment. Other researchers in this research area including Swanson (1987) proposed for the Training Technology System (TTS) instructional design model, whose elements were analysis; design; development; implementation and control.

Heinich et al. (1993) developed ASSURE model which was more detailed in process and got noticed for the inclusion of six key functionalities: (1) analysis of learners, (2) statement of objectives, (3) selection of media and materials, (4) utilization of media and materials, requirements of participation, and (6) evaluation and revision.

METHODOLOGY

NBU faculties were explained the basic and advanced versions of Lectora course authoring tools, and the same was practiced simultaneously. To learn more about their feedbacks on the trainings conducted to observe how they grasped the content authoring methods, they were provided with a set of questions. They were asked to reply them in that particular context.

This paper is based on the analytical survey method, and relies on the quantitative data gathered from different groups. It was collected through various data collection tools to identify the problem and to test the hypothesis. The researcher collected data in two phases: First was after the completion of Basic training but second was after the Advanced training. Same questions were repeated after each phase of training and for the same population.

Sample of the Study

a. Data Collection for the Basic Training Phase

The population of this study was from different campuses and colleges of NBU, which

represented different cities (about 412 faculty members from various departments). For each faculty, serial number was allotted. A table of random numbers was used to select the sample.

The researcher selected randomly fifty percent of the total population (206) for further study. In the survey 167 (81%) people responded. Researcher rejected 11 Questionnaires because they were not answered properly. The final data was 156 out of which male population was 70 and female population was 86.

b. Data Collection for the Advanced Training Phase

After the second phase of training, the researcher collected the data. The population was same so 412 NBU faculty members. And, again simple random selection was done here. Out of 412, this researcher selected 206-population for the further study. In this training phase, 159 (77%) population responded. Out of 159, researcher discarded 8 questionnaires due to all fields not filled properly. The final data for the survey in the second phase training was 151 out of which male population was 69 and female population was 82.

Tools of the Study

The researcher collected primary data from the Questionnaires as data gathering tool to know the perceptions of NBU faculty about Lectora content authoring tool.

Questionnaires were based on the Likert scale method. The researcher had given participants options to choose one of them (Strongly Agree, Agree, Neutral, Strongly Disagree and Disagree).

Variables

Independent Variables

Gender, Training for Lectora Designing.

Dependent Variables

Skill and Awareness of Faculty members for Designing Tools.

Questionnaires

This research had questionnaire of 13 questions, and was categorized into 2 question sets. Out of 13 questions, first 5 (Item no. 1- 5) were designed to know the general awareness of NBU faculty about course designing. Rest 8 questions (Item no. 6 - 13) were asked to assess viewpoints after the completion of all trainings. Researcher provided them same set of questions on paper after each training session concluded. Following were the questions as mentioned in Table 1.

RESULTS

This part of the paper is focused on the data of this research which had been obtained through questionnaires as tool for data gathering. The researcher collected data in two phases. First data was collected after the Basic training while second data was collected after the Advanced training. Same questions were given to the participants after both the trainings. It was a paper based and t-test analysis used to test the hypothesis to get answers of all four objectives of this research.

First Question

Whether researcher witnessed any changes in awareness level of NBU faculty about designing tools after the Basic and Advanced trainings organized for them?

To answer this question, the researcher did t-test between Basic and advanced training groups of the population. The following Hypothesis t-test had been done here. Result of the test is summarized in Table 2 and is defined thereafter. SET1 questions (Items 1- 5) has been taken here.

Hypothesis 1

$\mu 1 = \mu 2$
$\mu 1 \neq \mu 2$
If $\mu 1 = \mu 2$ it means there is no significant difference of awareness level between the Basic and Advanced groups.

If $\mu 1 \neq \mu 2$ it means there is significant difference of awareness level between the Basic and Advanced groups.

$\mu 1$ stands for Basic group and $\mu 2$ stands for Advance group.

Here, N represents the group population (No of participants), DF is degree of freedom and CV is critical value. After putting the mean, SD and N, researcher found the t value.

Table 1:   Questionnaires

Item No.	Questions
SET 1 (To know the general awareness about designing tools.)	
1	What do you know about course designing?
2	Have you ever worked on any course designing tool?
3	If you are aware of the course designing tools, then what is your opinion about them? Is it an excellent tool for course designing?
4	If you already know about the course designing tools, then do you think Lectora tools are comparatively better than other course designing tools available in the market?
5	Do you use some other course designing tools other than Lectora course authoring tools?
SET 2 (To know the designing skills of faculty members about Lectora)	
6	Are you able to design Quizzes more feasibly through Lectora course authoring tools after the training?
7	Is this tool user-friendly? Does it mean that any newcomer can use it easily while one explores during course designing?
8	Authoring tools have sufficient features to design the courses?
9	Have you ever conducted online trainings after designing courses in Lectora course authoring tools?
10	What is your opinion about Lectora course authoring tools if compared to your previous approaches towards course designing in comparison with that of Lectora after availing necessary training?
11	In terms of time saving, are Lectora course authoring tools effective to save time like creating courses for once and using it forever with Basic customization?
12	Do you find easy and effective solutions for chapter designing, picture settings and other formatting options in Lectora course authoring tools?
13	Do you feel that they carry excellent presentation methods, and do you believe that it would attract the students enrolled in your classes?

Table 2: Awareness level of population after the Basic and Advanced training phases

	Basic	Advanced
Mean	12.1	19.7
Variance	11.7	6.4
Stand. Dev.(SD)	3.4	2.5
N	156	151
T	-22.2	
DF	305	
CV	1.96	
P	0.05	

The absolute value of the calculated t exceeds the critical value (22.2>1.96), so the means are significantly different at $p < 0.05$.

So, after getting the above results, the researcher could discard the first assumption ($\mu 1 = \mu 2$). Therefore, there was significant difference between the Basic and Advanced training groups.

It means $\mu 1 \neq \mu 2$ is correct.

So, it was proved that there remained improvement in the awareness level in the population after the completion of Advanced training, and researcher obtained positive result.

Second Question

Whether the researcher witnessed any changes in the skills of NBU faculty about course designing tools after organizing the Basic and Advanced trainings?

To answer this question, this researcher did t-test between the Basic and Advanced training phases of the population. Following Hypothesis t-test has been done here. Result of the test is summarized in Table 3 and is defined thereafter. SET2 (Items 6 - 13) has been taken here.

Table 3: Skill level of population after the Basic and Advanced training phases

	Basic	Advanced
Mean	19.5	32.2
Variance	16.6	9.8
Stand Dev	4.0	3.1
N	156	151
T	-30.5	
DF	305	
CV	1.96	
P	0.05	

Hypothesis 2

$\mu 1 = \mu 2$
$\mu 1 \neq \mu 2$
If $\mu 1 = \mu 2$ it means there is no significant difference between the two groups.
If $\mu 1 \neq \mu 2$ then it means there is a significant difference between the two groups.

The absolute value of the calculated t exceeds the critical value (30.5>1.96), so the means are significantly different at $p < 0.05$. In fact, after getting the above results, researcher discarded the first assumption ($\mu1=\mu2$).

It means $\mu1 \neq \mu2$ is true. It means there is major difference between the Basic and Advanced groups.

So, it is proved that their positive sign for skill enhancement about Lectora course authoring tools after the Advanced training was completed. So, there was an enhancement in the skills after Advanced training.

Third Question

Whether the researcher witnessed any changes in NBU faculties' awareness level about designing tools after the Advanced trainings organized between male and female faculty members?

To answer this question, the researcher did t-test between Advanced training phases of Male and Female faculties. The following Hypothesis t-test had been done here. Result of the test is summarized in Table 4 and is defined thereafter. Data (SET1 (Items 1- 5) has been taken from the Male and Female groups after the Advanced training.

Table 4: Awareness level of male and female groups after the Advanced training phase

	Advanced (Male)	Advanced (Female)
Mean	18.5	20.8
Variance	6.8	3.7
Stand Dev	2.6	1.9
N	69	82
T	-6.2	
DF	305	
CV	1.98	
P	0.05	

Hypothesis 3

$\mu1=\mu2$
$\mu1\neq\mu2$
If $\mu1=\mu2$ it means there is no significant difference between the two groups.

If $\mu1 \neq \mu2$ then it means there is a significant difference between the two groups.

The means of Advanced (Male) and Advanced (Female) groups are significantly different at $p <0.05$. Absolute value of the

calculated t exceeds the critical value (6.2>1.98), so the means are significantly different.

So, after getting the above results, the researcher did discard the first assumption ($\mu1=\mu2$).

It means $\mu1\neq \mu2$ is correct.

There is significant difference between the groups of male and female faculty members after the Advanced training. So, it was proved that Female group showed better performance in terms of awareness level than their male counterparts while Advanced training was completed.

NBU's female faculty members performed well due to their better awareness of the designing tools than the male faculty members.

Fourth Question

Whether the researcher witnessed any changes in the skills of male and female NBU faculty about designing tools after the Advanced trainings?

To answer this question, the researcher did t-test between the population of male and female groups from the Advanced training phases. The following Hypothesis t-test had been done here. Result of the test is summarized in Table 5 and is defined thereafter. Data (SET2 (Items 6 - 13) has been taken from the male and female groups after the Advanced training.

Table 5: Skill level of male and female groups after Advanced training phase

	Advanced (Male)	Advanced (Female)
Mean	30.6	33.6
Variance	9.4	6.1
Stand Dev	3.0	2.4
N	69	82
T	-6.5	
DF	149	
CV	1.98	
P	0.05	

Hypothesis 4

$\mu1=\mu2$
$\mu1\neq\mu2$
If $\mu1=\mu2$ it means there is no significant difference between the two groups.

If $\mu1 \neq \mu2$ then it means there is a significant difference between the two groups.

The means of Advanced (Male) and Advanced (Female) groups are significantly

different at p<0.05. The absolute value of the calculated *t* exceeds the critical value (6.5>1.98), so the means are significantly different.

So, after getting the above results, the researcher could discard the first assumption ($\mu1= \mu2$).

It means $\mu1 \neq \mu2$ is true.

There is very significant difference between the groups of male and female after the Advance training.

So, it was proved that female faculty performed better with their designing skills than their male counterparts upon the completion of the Advanced training, and there was more improvement in their designing skills. It means they would grasp the training inputs more than their male colleagues while being training to use Lectora course authoring tools.

Summary of the Result

- In the first question t value exceeds the critical value (22.2>1.96), so the means are significantly different at p<0.05. It means there is improvement in their awareness level for the designing tools after the Advanced training. In the Basic training though, there was less awareness about the designing tools.
- For the second question of this survey, the absolute value of the calculated *t* exceeds the critical value (30.5>1.96), so the means are significantly different at p<0.05. It shows that after the Advanced training, there was drastic change in the faculties' designing skills towards Lectora course authoring tools. Such changes were very much positive for Lectora in NBU with an increased skill level after the Advanced trainings.
- Third question of this survey indicated that out of male and female groups, females were more aware than their male counterparts, after the Advanced training on course designing tools because absolute value of the calculated *t* exceeds the critical value (6.2>1.98), so the means are significantly different at p<0.05.
- Fourth question of survey showed that in the male and female groups, females did much better and their designing improved positively towards the course authoring tools than their male counter-

parts because the value of the calculated *t* exceeds the critical value (6.5>1.98) at p<0.05.

DISCUSSION

This paper merits for the discussion in a context of research results and limitations identified to further observe how future researches on the subject make further assessments (Yousri 2017). Broadly, the discussion is on male and female faculty members' skill and awareness at NBU to their ages and nationalities besides gender variances. Through this paper, the researcher has tried to find out the outcomes of trainings. For any organization it is very much important to know the effects of trainings, which can be achieved only by the evaluation of trainings conducted.

Al-Fattal (2017) evaluated the performance of faculty members in a Syrian private university for appraisals through a case study. Many instructional design models have been developed over the years for this purpose to do the analysis, strategy development and evaluation of courses or lesson designs for their proper and effective improvement.

The researcher tested skill and awareness between male and female faculty at NBU only besides second test of all participants in general. NBU faculty represented diverse nationalities in different age groups, and associated with male and female campuses, colleges and deanships. The research could be expanded further to find out the skill and awareness differences amongst the faculty represented through their diversified nationalities as well. Furthermore, this research could have taken age as a scale to learn about the skill and awareness differences amongst the faculty in this university. The factors which might affect the training efficiencies include less or no support from higher authorities to even colleagues and or third parties besides rest aspects such as people's personal attitude towards e-learning to personal matters that might directly or indirectly affect trainings conducted regularly.

CONCLUSION

This research concludes with the findings and results at NBU that Lectora course authoring tools training was highly beneficial to en-

hance faculty's course designing skills and for awareness about the designing tools amongst them. Male faculty required more concentration and training than their Female counterparts. NBU ensured the faculty members were kept abreast of the use of course designing tools to enhance their skills.

NBU has deployed Blackboard LMS for e-learning and facilitates an environment for faculty to avail such services through their best uses. There was an ardent need to groom skilled professionals (faculty) to independently work as SME by using effective designing tools and to upload contents on Blackboard. There were initial reluctances because not all faculties were at home to use the content authoring tools. They were exposed to various forms of e-learning tools, and also obtained regular trainings on Blackboard. Female participants were far ahead of the male counterparts after obtaining trainings. This research overviewed the multiple dimensions of Lectora content authoring tools and their uses.

RECOMMENDATIONS

Future researches must focus on the Advanced stages to compare Lectora content authoring tool with those at par with it. It would groom the faculties to use and explore such tools. They must have an eye on other phases of awareness to evaluate the roles in e-learning in higher education. NBU planned to add more lucrative contents to sharpen the skills of faculty members. It organized trainings on 2D and 3D animation. Future researches should have focus on their advanced versions. Take for example e-courses for subjects like Engineering and Medicine Sciences planned with the 2D and 3D views for better perception and clarity for the students to grasp them.

If instructors use such technology tools, there would be drastic change in the students' perception through watching such videos besides the normal course contents. Furthermore, NBU planned to create its own Virtual World for studies and for trainings to undergo in future. Virtual World e-learning platforms like Second Life must be considered in the future researches.

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