















	46-55	4.08	.658		
	Above 55 years	3.57	.656		
<i>Feedback of Learning</i>	18-25	3.97	.642	8.091	<b>.000</b>
	26-35	4.15	.587		
	36-45	3.99	.583		
	46-55	4.07	.662		
	Above 55 years	3.48	.822		
<i>Teaching Presence</i>	18-25	4.02	.521	10.616	<b>.000</b>
	26-35	4.20	.534		
	36-45	4.14	.340		
	46-55	4.05	.666		
	Above 55 years	3.58	.586		
<i>Social Presence</i>	18-25	4.05	.573	7.806	<b>.000</b>
	26-35	4.15	.671		
	36-45	4.10	.602		
	46-55	3.99	.744		
	Above 55 years	3.50	.775		
<i>Learner Satisfaction with LMS</i>	18-25	3.97	.576	3.809	<b>.005</b>
	26-35	4.13	.663		
	36-45	4.11	.498		
	46-55	4.03	.694		
	Above 55 years	3.73	.693		
<i>LMS Course Learning Effectiveness</i>	18-25	4.06	.621	6.085	<b>.000</b>
	26-35	4.25	.608		
	36-45	4.18	.578		
	46-55	4.04	.677		
	Above 55 years	3.71	.738		

**Source:** Authors Compilation

The above table shows the one-way ANOVA results between the age of the users and their response on LMS quality factors. For the demographic of Age, results indicated statistically significant differences between the groups for eight of the responses on LMS quality scales: ‘Pedagogical Design’, ‘Interface Design’, ‘Transfer of Learning’, ‘Feedback of Learning’, ‘Teaching Presence’, ‘Social Presence’, ‘Learner Satisfaction with LMS’ and ‘LMS Course Learning Effectiveness’. For the scale ‘Pedagogical Design’, those aged 26-35 (M=4.21) had higher mean score than others. For the scale ‘Interface Design’, those aged 26-35 (M=4.20) had higher mean score than others. For the scale ‘Transfer of Learning’, those aged 26-35 and 36-45 (M=4.16) had higher mean score than others. For the scale ‘Feedback of Learning’, those aged 26-35 (M=4.15) had higher mean score than others. For the scale ‘Teaching Presence’, those aged 36-45 (M=4.14) had higher mean score than others. For the scale ‘Social Presence’, those aged 26-35 (M=4.15) had higher mean score than others. For the scale ‘Learner Satisfaction with LMS’, those aged 26-35 (M=4.13) had higher mean score than others. For the scale ‘LMS Course Learning Effectiveness’, those aged 26-35 (M=4.25) had higher mean score than others. For the scale ‘Content Presentation Format’, there is no significant differences among the age group of the users.

**Table 7:** One Way ANOVA between Work Experience and LMS Quality Factors

<i>LMS Quality Factors</i>	<i>Work Experience</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Pedagogical Design</i>	< 1 year	3.91	.549	2.921	<b>.013</b>

	>= 1 year and < 3 years	4.16	.418		
	>= 3 years and < 5 years	4.13	.620		
	>= 5 year and < 7 years	4.26	.408		
	>= 7 years and < 9 years	4.11	.572		
	>= 9 years	4.06	.626		
<i>Interface Design</i>	< 1 year	3.88	.554	2.548	<b>.027</b>
	>= 1 year and < 3 years	4.15	.367		
	>= 3 years and < 5 years	4.10	.557		
	>= 5 year and < 7 years	4.14	.510		
	>= 7 years and < 9 years	4.07	.546		
	>= 9 years	4.09	.625		
<i>Content Presentation Format</i>	< 1 year	3.93	.575	2.183	.055
	>= 1 year and < 3 years	4.14	.395		
	>= 3 years and < 5 years	4.08	.591		
	>= 5 year and < 7 years	4.21	.461		
	>= 7 years and < 9 years	4.14	.513		
	>= 9 years	4.12	.569		
<i>Transfer of Learning</i>	< 1 year	3.92	.617	3.904	<b>.002</b>
	>= 1 year and < 3 years	4.18	.418		
	>= 3 years and < 5 years	4.13	.571		
	>= 5 year and < 7 years	4.21	.518		
	>= 7 years and < 9 years	4.11	.579		
	>= 9 years	3.92	.670		
<i>Feedback of Learning</i>	< 1 year	3.84	.713	2.056	.070
	>= 1 year and < 3 years	4.04	.496		
	>= 3 years and < 5 years	4.02	.670		
	>= 5 year and < 7 years	4.19	.476		
	>= 7 years and < 9 years	4.00	.674		
	>= 9 years	3.92	.779		
<i>Teaching Presence</i>	< 1 year	3.84	.626	4.778	<b>.000</b>
	>= 1 year and < 3 years	4.14	.431		
	>= 3 years and < 5 years	4.15	.475		
	>= 5 year and < 7 years	4.21	.338		
	>= 7 years and < 9 years	4.04	.554		
	>= 9 years	3.96	.641		
<i>Social Presence</i>	< 1 year	3.86	.618	3.539	<b>.004</b>
	>= 1 year and < 3 years	4.11	.541		
	>= 3 years and < 5 years	4.12	.649		
	>= 5 year and < 7 years	4.20	.574		
	>= 7 years and < 9 years	4.11	.611		
	>= 9 years	3.88	.774		
<i>Learner Satisfaction with LMS</i>	< 1 year	3.83	.638	2.720	<b>.020</b>
	>= 1 year and < 3 years	4.11	.510		
	>= 3 years and < 5 years	4.03	.608		
	>= 5 year and < 7 years	4.19	.467		
	>= 7 years and < 9 years	3.98	.704		
	>= 9 years	3.97	.667		
<i>LMS Course Learning Effectiveness</i>	< 1 year	3.87	.708	3.266	<b>.007</b>
	>= 1 year and < 3 years	4.20	.538		
	>= 3 years and < 5 years	4.13	.619		
	>= 5 year and < 7 years	4.25	.541		
	>= 7 years and < 9 years	4.14	.607		
	>= 9 years	4.03	.723		

**Source:** Authors Compilation

The above table shows the one-way ANOVA results between the work experience of the users and their response on LMS quality factors. For the demographic of Work experience, results

indicated statistically significant differences between the groups for seven of the responses on LMS quality scales: ‘Pedagogical Design’, ‘Interface Design’, ‘Transfer of Learning’, ‘Teaching Presence’, ‘Social Presence’, ‘Learner Satisfaction with LMS’ and ‘LMS Course Learning Effectiveness’. For the scale ‘Pedagogical Design’, those work experience ranged between  $\geq 5$  year and  $< 7$  years ( $M=4.26$ ) had higher mean score than others. For the scale ‘Interface Design’, those work experience ranged between  $\geq 1$  year and  $< 3$  years ( $M=4.15$ ) had higher mean score than others. For the scale ‘Transfer of Learning’, those work experience ranged between  $\geq 5$  year and  $< 7$  years ( $M=4.21$ ) had higher mean score than others. For the scale ‘Teaching Presence’, those work experience ranged between  $\geq 5$  year and  $< 7$  years ( $M=4.21$ ) had higher mean score than others. For the scale ‘Social Presence’, those work experience ranged between  $\geq 5$  year and  $< 7$  years ( $M=4.20$ ) had higher mean score than others. For the scale ‘Learner Satisfaction with LMS’, those work experience ranged between  $\geq 1$  year and  $< 3$  years ( $M=4.11$ ) had higher mean score than others. For the scale ‘LMS Course Learning Effectiveness’, those work experience ranged between  $\geq 5$  year and  $< 7$  years ( $M=4.25$ ) had higher mean score than others. For the scales: ‘Content Presentation Format’ and ‘Feedback of Learning’, there is no significant differences among the year categories of work experience of the users.

**Table 8: One Way ANOVA between LMS Experience and LMS Quality Factors**

<i>LMS Quality Factors</i>	<i>LMS Experience</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Pedagogical Design</i>	$\geq 6$ months and $< 1$ year	3.87	.592	11.978	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.29	.408		
	$\geq 2$ years and $< 3$ years	4.14	.511		
	$\geq 3$ years and $< 4$ years	3.77	.536		
	$\geq 4$ years	4.06	.672		
<i>Interface Design</i>	$\geq 6$ months and $< 1$ year	3.86	.534	11.146	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.22	.401		
	$\geq 2$ years and $< 3$ years	4.14	.510		
	$\geq 3$ years and $< 4$ years	3.83	.682		
	$\geq 4$ years	4.09	.684		
<i>Content Presentation Format</i>	$\geq 6$ months and $< 1$ year	3.90	.571	9.083	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.23	.373		
	$\geq 2$ years and $< 3$ years	4.14	.474		
	$\geq 3$ years and $< 4$ years	3.88	.769		
	$\geq 4$ years	4.15	.641		
<i>Transfer of Learning</i>	$\geq 6$ months and $< 1$ year	3.93	.588	10.233	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.25	.429		
	$\geq 2$ years and $< 3$ years	4.11	.556		
	$\geq 3$ years and $< 4$ years	3.80	.683		
	$\geq 4$ years	3.88	.748		
<i>Feedback of Learning</i>	$\geq 6$ months and $< 1$ year	3.87	.708	10.071	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.15	.522		
	$\geq 2$ years and $< 3$ years	4.12	.479		
	$\geq 3$ years and $< 4$ years	3.57	.705		
	$\geq 4$ years	3.75	.862		
<i>Teaching Presence</i>	$\geq 6$ months and $< 1$ year	3.89	.574	11.146	<b>.000</b>
	$\geq 1$ year and $< 2$ years	4.22	.427		
	$\geq 2$ years and $< 3$ years	4.12	.458		
	$\geq 3$ years and $< 4$ years	3.89	.515		
	$\geq 4$ years	3.85	.696		
<i>Social Presence</i>	$\geq 6$ months and $< 1$ year	3.87	.560	17.168	<b>.000</b>

	>= 1 year and < 2 years	4.27	.502		
	>= 2 years and < 3 years	4.13	.574		
	>= 3 years and < 4 years	3.58	.763		
	>= 4 years	3.75	.897		
<i>Learner Satisfaction with LMS</i>	>= 6 months and < 1 year	3.77	.711	12.072	<b>.000</b>
	>= 1 year and < 2 years	4.19	.467		
	>= 2 years and < 3 years	4.13	.476		
	>= 3 years and < 4 years	3.74	.556		
	>= 4 years	3.92	.756		
<i>LMS Course Learning Effectiveness</i>	>= 6 months and < 1 year	3.91	.712	13.074	<b>.000</b>
	>= 1 year and < 2 years	4.31	.458		
	>= 2 years and < 3 years	4.17	.536		
	>= 3 years and < 4 years	3.74	.628		
	>= 4 years	3.90	.818		

**Source:** Authors Compilation

The above table shows the one-way ANOVA results between the LMS experience of the users and their response on LMS quality factors. For the demographic of LMS experience, results indicated statistically significant differences between the groups for all of the nine responses on LMS quality scales: ‘Pedagogical Design’, ‘Content Presentation Format’, ‘Interface Design’, ‘Transfer of Learning’, ‘Feedback of Learning’, ‘Teaching Presence’, ‘Social Presence’, ‘Learner Satisfaction with LMS’ and ‘LMS Course Learning Effectiveness’. For the scale ‘Pedagogical Design’, those LMS experience ranged between >= 1 year and < 2 years (M=4.29) had higher mean score than others. For the scale ‘Interface Design’, those LMS experience ranged between >= 1 year and < 2 years (M=4.22) had higher mean score than others. For the scale ‘Content Presentation Format’, those LMS experience ranged between >= 1 year and < 2 years (M=4.23) had higher mean score than others. For the scale ‘Transfer of Learning’, those LMS experience ranged between >= 1 year and < 2 years (M=4.25) had higher mean score than others. For the scale ‘Feedback of Learning’, those LMS experience ranged between >= 1 year and < 2 years (M=4.15) had higher mean score than others. For the scale ‘Teaching Presence’, those LMS experience ranged between >= 1 year and < 2 years (M=4.22) had higher mean score than others. For the scale ‘Social Presence’, those LMS experience ranged between >= 1 year and < 2 years (M=4.27) had higher mean score than others. For the scale ‘Learner Satisfaction with LMS’, those LMS experience ranged between >= 1 year and < 2 years (M=4.19) had higher mean score than others. For the scale ‘LMS Course Learning Effectiveness’, those LMS experience ranged between >= 1 year and < 2 years (M=4.31) had higher mean score than others.

**Table 9:** One Way ANOVA between Designation and LMS Quality Factors

<i>LMS Quality Factors</i>	<i>Designation</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Pedagogical Design</i>	Junior Level Management Grade	4.01	.536	4.356	<b>.005</b>
	Middle Level Management Grade	4.19	.509		
	Senior Level Management Grade	4.07	.633		
	Top Level Management Grade	4.27	.394		
<i>Interface Design</i>	Junior Level Management Grade	4.03	.539	2.331	.074
	Middle Level Management Grade	4.12	.532		
	Senior Level Management Grade	4.03	.582		
	Top Level Management Grade	4.23	.305		

<i>Content Presentation Format</i>	Junior Level Management Grade	4.01	.559	3.061	<b>.028</b>
	Middle Level Management Grade	4.16	.499		
	Senior Level Management Grade	4.10	.545		
	Top Level Management Grade	4.23	.367		
<i>Transfer of Learning</i>	Junior Level Management Grade	4.06	.560	2.052	.106
	Middle Level Management Grade	4.12	.550		
	Senior Level Management Grade	4.00	.654		
	Top Level Management Grade	4.22	.424		
<i>Feedback of Learning</i>	Junior Level Management Grade	3.95	.658	5.203	<b>.002</b>
	Middle Level Management Grade	4.04	.568		
	Senior Level Management Grade	3.88	.776		
	Top Level Management Grade	4.30	.358		
<i>Teaching Presence</i>	Junior Level Management Grade	4.04	.588	2.331	.074
	Middle Level Management Grade	4.09	.473		
	Senior Level Management Grade	3.98	.587		
	Top Level Management Grade	4.20	.366		
<i>Social Presence</i>	Junior Level Management Grade	3.97	.681	3.130	<b>.025</b>
	Middle Level Management Grade	4.12	.575		
	Senior Level Management Grade	3.97	.709		
	Top Level Management Grade	4.23	.482		
<i>Learner Satisfaction with LMS</i>	Junior Level Management Grade	3.96	.623	4.598	<b>.003</b>
	Middle Level Management Grade	4.11	.526		
	Senior Level Management Grade	3.90	.727		
	Top Level Management Grade	4.20	.364		
<i>LMS Course Learning Effectiveness</i>	Junior Level Management Grade	4.01	.676	4.804	<b>.003</b>
	Middle Level Management Grade	4.21	.571		
	Senior Level Management Grade	4.02	.690		
	Top Level Management Grade	4.30	.420		

**Source:** Authors Compilation

The above table shows the one-way ANOVA results between the designation levels of the users and their response on LMS quality factors. For the demographic of Designation, results indicated statistically significant differences between the groups for six of the responses on LMS quality scales: 'Pedagogical Design', 'Content Presentation Format', 'Feedback of Learning', 'Social Presence', 'Learner Satisfaction with LMS' and 'LMS Course Learning Effectiveness'. For the scale 'Pedagogical Design', those fell under Top Level Management Grade (M=4.27) had higher mean score than others. For the scale 'Content Presentation Format', those fell under Top Level Management Grade (M=4.23) had higher mean score than others. For the scale 'Feedback of Learning', those fell under Top Level Management Grade (M=4.30) had higher mean score than others. For the scale 'Social Presence', those fell under Top Level Management Grade (M=4.23) had higher mean score than others. For the scale 'Learner Satisfaction with LMS', those fell under Top Level Management Grade (M=4.20) had higher mean score than others. For the scale 'LMS Course Learning Effectiveness', those fell under Top Level Management Grade (M=4.30) had higher mean score than others. For the scales: 'Interface Design', 'Transfer of Learning' and 'Teaching Presence', there is no significant differences among the designation levels of the users.

**Table 10: One Way ANOVA between Computer Knowledge and LMS Quality Factors**

<i>LMS Quality Factors</i>	<i>Computer Knowledge</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Pedagogical Design</i>	Average	3.60	.713	13.323	<b>.000</b>
	Excellent	4.31	.370		
	Good	4.02	.598		
	Satisfactory	3.67	.577		
	Very good	3.93	.610		
<i>Interface Design</i>	Average	3.63	.573	11.357	<b>.000</b>
	Excellent	4.27	.453		
	Good	3.98	.519		
	Satisfactory	3.58	.722		
	Very good	3.94	.578		
<i>Content Presentation Format</i>	Average	3.43	.401	14.144	<b>.000</b>
	Excellent	4.30	.428		
	Good	4.00	.526		
	Satisfactory	3.83	.289		
	Very good	3.96	.561		
<i>Transfer of Learning</i>	Average	3.76	.767	11.677	<b>.000</b>
	Excellent	4.28	.478		
	Good	3.97	.526		
	Satisfactory	3.47	.924		
	Very good	3.93	.656		
<i>Feedback of Learning</i>	Average	3.67	.624	6.572	<b>.000</b>
	Excellent	4.17	.525		
	Good	3.86	.692		
	Satisfactory	3.44	.962		
	Very good	3.91	.719		
<i>Teaching Presence</i>	Average	3.63	.582	6.293	<b>.000</b>
	Excellent	4.20	.482		
	Good	3.96	.508		
	Satisfactory	3.94	.096		
	Very good	3.97	.612		
<i>Social Presence</i>	Average	3.72	.701	7.502	<b>.000</b>
	Excellent	4.23	.579		
	Good	3.96	.623		
	Satisfactory	4.00	.000		
	Very good	3.88	.706		
<i>Learner Satisfaction with LMS</i>	Average	3.73	.723	12.244	<b>.000</b>
	Excellent	4.24	.457		
	Good	3.94	.580		
	Satisfactory	3.44	.962		
	Very good	3.81	.735		
<i>LMS Course Learning Effectiveness</i>	Average	3.70	.671	8.669	<b>.000</b>
	Excellent	4.30	.527		
	Good	3.95	.627		
	Satisfactory	3.83	.289		
	Very good	4.01	.722		

**Source:** Authors Compilation

The above table shows the one-way ANOVA results between the Computer knowledge of the users and their response on LMS quality factors. For the demographic of Computer knowledge, results indicated statistically significant differences between the groups for all of the nine responses on LMS quality scales: ‘Pedagogical Design’, ‘Content Presentation Format’,

'Interface Design', 'Transfer of Learning', 'Feedback of Learning', 'Teaching Presence', 'Social Presence', 'Learner Satisfaction with LMS' and 'LMS Course Learning Effectiveness'. For the scale 'Pedagogical Design', those possessed excellent computer knowledge (M=4.31) had higher mean score than others. For the scale 'Interface Design', those possessed excellent computer knowledge (M=4.27) had higher mean score than others. For the scale 'Content Presentation Format', those possessed excellent computer knowledge (M=4.30) had higher mean score than others. For the scale 'Transfer of Learning', those possessed excellent computer knowledge (M=4.28) had higher mean score than others. For the scale 'Feedback of Learning', those possessed excellent computer knowledge (M=4.17) had higher mean score than others. For the scale 'Teaching Presence', those possessed excellent computer knowledge (M=4.20) had higher mean score than others. For the scale 'Social Presence' those possessed excellent computer knowledge (M=4.23) had higher mean score than others. For the scale 'Learner Satisfaction with LMS', those possessed excellent computer knowledge (M=4.24) had higher mean score than others. For the scale 'LMS Course Learning Effectiveness', those possessed excellent computer knowledge (M=4.30) had higher mean score than others.

### ***FINDINGS***

- The first objective was to study the demographic characteristics of the LMS users. Almost 60% of users are female. 49% of the users were between the age category of 18-25. Majority of the user's education qualification was undergraduate (62%). 33% of the users fell under the Junior Level Management Grade in their designation level. Under Users' experience in LMS, most of them (41%) ranged between greater than or equal to 1 year and less than 2 years. Majority (59%) of the users are from Private banks.
- The second objective was to find the association between the demographic characteristics of the users and the LMS quality factors. Analysis of the results revealed that, there is a significant strong association between work experience of the users and their experience in LMS and also between age of the users and their experience in LMS. It is also evident from the results that, there exists no association between designation levels of the users and their computer knowledge, and also there is no association between bank type of the users and their computer knowledge.
- The third objective was to analyze the difference in opinion towards LMS course learning effectiveness among users' demographics (Gender, Education Qualification, Bank Type, Age, Work Experience, LMS Experience, Designation and Computer Knowledge) and LMS quality factors (pedagogical design, interface design, content presentation format, transfer of learning and feedback of learning, learner experience and learner satisfaction). There was a significant difference in user's opinion on pedagogical design of LMS among gender, age, work experience, LMS experience, designation and computer knowledge. There was a significant difference in user's opinion on interface design of LMS among gender, age, education qualification, work experience, LMS experience and computer knowledge. There was a significant difference in user's opinion on content presentation format of LMS among gender, education qualification, LMS experience, designation and computer knowledge.

There was a significant difference in user's opinion on transfer of learning of LMS among gender, age, work experience, LMS experience and computer knowledge. There was a significant difference in user's opinion on feedback of learning of LMS among gender, age, LMS experience, designation and computer knowledge. There was a significant difference in user's opinion on teaching presence of LMS among gender, age, education qualification, work experience, LMS experience and computer knowledge. There was a significant difference in user's opinion on social presence of LMS among gender, age, bank type, work experience, LMS experience, designation and computer knowledge. There was a significant difference in user's opinion on satisfaction with LMS among gender, age, work experience, LMS experience, designation and computer knowledge. There was a significant difference in user's opinion on LMS course learning effectiveness among gender, age, work experience, LMS experience, designation and computer knowledge.

### ***SUGGESTIONS***

- Learners' personal learning preferences must be obtained in order to personalize their learning experience.
- The feedback of learning should all be addressed and considered while presenting the next course content.
- Keeping transfer of learning in mind, course content creators must construct course profiles in a way that they can be mapped to learner needs resulting in using the knowledge acquired in their daily operations.
- Developers must take great care when creating LMS to ensure that learners have the ability to customize the user interface and navigate through learning materials and content at their leisure.

### ***CONCLUSION***

Learning Management Systems (LMS) have been the main vehicle for delivering and managing e-learning courses in educational, business, governmental and vocational learning settings. Since the mid-nineties there is a plethora of LMS in the market with a vast array of features.

The increasing complexity of these platforms makes LMS evaluation a hard and demanding process that requires a lot of knowledge, time, and effort. Nearly 50% of respondents in surveys conducted by Panagiotis Zaharias and Christopher Pappas (2016) have indicated that they seek to change their existing LMS primarily due to user experience issues.

To analyze the above user experience issues, this study concentrated on the LMS quality factors those proved the LMS course learning effectiveness among its users. It is still necessary to

modify the LMS quality factors to the needs of individual learners in order to make learning enjoyable and achieve desired learning outcomes.

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