

# A Comparison of the Utilization of E-learning Management Systems in the Republic of Ireland and Kingdom of Saudi Arabia: A Case Study (2015)

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The authors of this paper investigated the number of proprietary and commercial learning management systems in the Republic of Ireland and the Kingdom of Saudi Arabia. To identify and tally the systems in use, authors conducted web searches followed by email and interview follow-ups. After investigating (31) institutions in the Republic of Ireland, and (46) of institutions in the Kingdom of Saudi Arabia, the authors learned that each country had chosen a different system for the majority of their work. The research examines both self-developed and commercial systems and looks at which is used more. The study analyses many higher education institutions using both types of E-learning systems. The study works to answer the following questions:

- What is the most widely used learning management system used in Saudi and Irish universities?
- What is the most widely used learning management system used by teachers in Saudi and Irish universities?
- What is the most widely used learning management system used by students in Saudi and Irish universities?

The research works to provide information for a part of the educational field that has not been studied extensively.

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## I. Introduction

Advances in science and technology are rapidly altering the world. Currently, there is a tremendous technological revolution in information, electronics, computers, and communications. These changes can be seen in the educational field, especially in universities which are updating their information systems. It is easier, cheaper, and more efficient for educational institutions to upgrade their technological capacity as opposed to constructing new buildings and expanding the number of staff members in various departments.

“Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.”(Robinson, Molenda, & Rezabek, 2008,p.15). To improve the delivery and effectiveness of education, researchers have examined how technology can solve current educational problems such as allowing universities to be available to more students without having to physically expand their campuses or open satellite locations. In this case, technology allows a university to broadcast and possibly record its lectures and disseminate educational materials using the Internet. As a result, students are offered greater flexibility in their ability to attend lectures and access materials. The result of the research has been an expansion of strategies and methods used by educational institutions. Concepts like distance learning have emerged through the union of technology and education

and have provided educational opportunities to individuals who cannot physically attend a school (Allan, 2007; Bonk & Graham, 2012; Garrison, 2011; Graham & Dziuban, 2008; Moore, Dickson-Deane, & Galyen, 2011; Vaughan, 2007).

An E-learning management system provides a framework for the management of digital education content. This system emerged from research performed on current educational management methods and allows the automatic exchange of information between teachers and students. As a result, the accessibility of online resources and current technology allow E-learning to be an easily attainable and viable option for many students around the world (Chanchary & Islam, 2011).

Recently, the way that educational concepts are conveyed to students has evolved from the traditional “face to face teaching” method and now involves the ability to effectively transmit information using a virtual electronic environment. For example, information that used to be written on a chalkboard or projected onto a screen has been converted into an electronic format such as a Microsoft PowerPoint presentation to allow students to access the information from their computers. As a result, the education and educational training world has changed drastically and has become more flexible by adopting different learning methods. For example, many companies in Saudi Arabia such as Saudi Aramco rely on E-learning to train employees (“The Training World is Wide Open,” 2015). The changes made to the way that

information is conveyed have allowed individuals to use the Internet to learn or receive training from any part of the world without being limited by factors such as travel difficulties or expense. As the world moves toward a 24/7, globalized culture, the increase in E-learning methods has become increasingly more important. E-learning allows individuals to learn at any time and from any location because it does not require a live instructor and can incorporate a combination of blended, online, computer-assisted, and virtual learning methods (Allan, 2007). However, in some cases such as colleges, students may be required to attend online courses at a certain time. Despite this restriction, E-learning still allows students to have a flexible learning schedule. For example, Missouri University of Science and Technology in the United States allows its distance education students to attend lectures at a specific time, but also allows them to watch the recording of the lecture at a later time ("Missouri University of Science and Technology Policy Memoranda," 2015).

The researchers believe that Ireland has successfully incorporated technology into its educational and training fields. The majority of Irish universities use E-learning management systems (LMSs), virtual learning management systems (VLMs), or course management systems (CMSs) to handle the teaching and learning processes in such areas for example content delivery methods, storage and assessment. Some Irish universities built their own LMS while others purchased an LMS from a company such as Blackboard or use an open-source system such as Moodle. One of the reasons that Irish universities worked to adopt E-learning was in response to the educational aims of the European Union (EU) which wanted to explore the possibilities of E-learning and encouraged countries to attain higher educational goals. In its Lisbon objectives (2000), the EU stated that it wanted to "make Europe the most competitive and dynamic knowledge-based economy in the world, capable of sustained economic growth with more and better jobs and great social cohesion" (MacKeogh & Fox, 2009, p.148). In May 2008, the European Council suggested that member states establish E-learning and distance learning programs to encourage a culture of lifelong learning (MacKeogh & Fox, 20-22 October 2008).

The researchers in the current study (April 2015) collected information about which systems are used most in Irish and Saudi universities. They also worked to obtain as much information as possible about the E-learning management system used, the number of users relying on the system, and the location of the academic

institution. This information provides discusses the following benefits:

- Knowing the general trend of adopting Learning Management Systems in Saudi and Irish universities
- Providing information about which system is used most by students in Saudi and Irish universities
- Providing information about which system is used most by teachers and students in Saudi and Irish universities
- Allowing further research to determine why one system is used more than another system(s).

The study is part of a project that works to determine the relationship between LMSs and the pedagogical performance of academic staff members in Saudi and Irish universities. Moreover, the researcher purposefully chose to study Ireland and Saudi Arabia due to the differences in each country's educational environment and to take advantage of the researcher's educational experience and background. The researchers are not affiliated with the EU.

According to the Organization for Economic Cooperation and Development (OECD), Saudi Arabia has one of the highest birth rates in the world. Furthermore, more than 50% of the Saudi population is under 20 years old. This statistic means that Saudi universities are currently facing or will soon be facing significant challenges regarding enrolment. As a result, the country is acutely aware of the importance of E-learning and distance education. Since new buildings and infrastructure cannot be built as quickly as needed, E-learning offers a viable solution for the enrolment issue (Chanchary & Islam, 2011).

Saudi Arabia has been able to stay relatively up-to-date with E-learning and distance education capabilities. Most Saudi universities, both public and private, have centres which provide and manage their teaching and learning processes. In addition, the Ministry of Education has opened the National Centre for E-learning and Distance Education (NCeDL) with an ambitious vision that includes the "establishment of a holistic educational system based on the best applications and techniques of E-Learning, as well as the achievement of progress and excellence in both learning and teaching" ("The National Center for e-Learning and Distance Learning," 2015, par.3).

## II. Methods

This project examined the LMSs used in the Republic of Ireland and the Kingdom of Saudi Arabia. The types of

systems used, which systems are used most, and if the system was self-developed or commercially developed were also analysed. The study relied on the random selection of a sample target. The study examined 31 higher educational institutions in 13 Irish cities and 46 universities and colleges in 23 Saudi Arabian cities. The research explored the website of each educational institution to determine which system(s) is used and the number of students and academic staff using the system. When additional information was needed that could not be found on the website, the researchers used email or telephone calls to obtain relevant information. The researchers used Microsoft Excel to conduct a data analysis for this study. Microsoft Excel allowed the researchers to analyse which LMS was used most by Irish and Saudi universities and to determine the systems that were used most by teachers and students. The results for each country were then compared. The main purpose of using Excel was to provide the study with descriptive statistics which allowed the researcher to analyse information and answer research questions. The information used in this study was based on the information provided by the official website of each university. The study also used information that was posted on the official website of the Saudi Arabian Ministry of Education and the Irish Department of Education. Some of the information found on these websites included the number of universities, teachers, and students in each country. In addition, the researchers sent many emails to confirm data collected from websites. In some cases, no response was received from a university. If no email response was received, the researchers used telephone calls to confirm the data. Misinformation was avoided through follow-up email and/or phone calls to the university. In addition, the websites were examined to ensure that they were up to date.

### III. E-learning Management System in Republic of Ireland

Table 1 includes 31 universities and colleges in 13 cities in the Republic of Ireland and provides information about the types of educational management systems used. As of May 9, 2015, the Irish Department of Education and Skills website shows that there are 44 institutes of higher education in Ireland. Based on this figure, the research covered approximately 70% of all Irish higher education institutes. Moreover, the researchers took steps to ensure that there was diversity in the study by including different types of schools.

Figure 1 shows a breakdown of the E-learning management systems used by universities in Ireland.

Figures 2 and 3 show the percentage of teachers and students utilizing each system, respectively.

The outcome of this study showed that Moodle is the most used E-learning management system in Irish universities. Moodle is used in 55% of Irish colleges while 32% of colleges prefer outsourcing this task to organizations such as the Blackboard Company. A smaller percentage of colleges, 3%, developed their own system. For example, Dublin City University (DCU) created a system called *Loop*, a system that is a mixed and upgraded version of Moodle. This study also showed that more than 52% of all academic staff and students in Ireland use Blackboard. Approximately 10% of Irish institutes do not have any type of E-learning system.

### Moodle system

Moodle is open-source software (OSS) that is distributed under the General Public License (GNU). A GNU means that Moodle users are allowed to download, install, use, modify, and distribute the program for free. Moodle is available at <https://moodle.org/> and allows educators to create effective online learning sites.

### IV. E-learning Management System in Saudi Arabia

Table 2 provides information about 46 universities and colleges in Saudi Arabia located in 23 different cities. As of May 1, 2015, the Saudi Arabian Ministry of Education website states that there are 61 public and private higher education institutes in the country. Based on this figure, the research covered more than 75% of all higher education institutions and included a diverse sampling of schools including small and large public or private schools.

Figure 4 provides an illustration of the E-learning management systems used by Saudi Arabian universities. Figures 5 and 6 show the percentage of teachers and students utilizing each system, respectively.

The results of this investigation indicate that the most used E-learning management system in Saudi universities is Blackboard. This system is used in 44% of Saudi institutions while 32% of institutions use an open-source system such as Moodle or Jusur. Jusur is a system that was created in 2007 by the Saudi National Centre for E-learning (NCeDL). It has been adopted by only 7% of schools, possibly because it is so new or because universities had already established their own E-learning systems and had no need or desire to implement a new one. Jusur allows users to create sources, register both staff and students, track learners, and provide student

evaluations (Zouhair, 2010). Approximately 13% of colleges in Saudi Arabia do not currently support E-learning. The study showed that more than 65% of students and academic staff in Saudi Arabia use Blackboard while more than 22% of students use an open-source system such as Moodle or Jusur.

Blackboard system

Blackboard is one of the principal commercial Learning Management System (LMS) or Course Management System (CMS) software packages used by American and European universities (Beatty & Ulasewicz, 2006).

## V. Conclusions

Based on the results of the study, the Blackboard system is used in 20 of 46 Saudi universities. The Blackboard system is used in both large and small Saudi universities including King Feisal University which has roughly 135,000 students. Many of these students are registered in a blended-learning program that includes in-class and online learning. King Feisal University uses Blackboard to handle its educational curriculum.

According to Aljabre (2012), the number of Saudi female students has been growing and the establishment of online learning programs will allow additional female students to begin or continue their studies. The researchers believe that the Saudi government wants to find a way to increase the number of female students. For example, in 2008, Princess Nora bint Abdurrahman University (PNU), a female-only university, was opened. Currently, PNU has a total enrolment of roughly 40,000 female students. The university provides blending learning for students and uses the Blackboard system. The success of PNU provides additional support regarding the use of LMS as a way to increase the number of students.

The way that Saudi Arabian universities handle distance learning is similar to the way that Irish universities address this situation. The primary difference is that Blackboard is used in only 7 higher education institutes in Ireland compared to 20 higher education institutes in Saudi Arabia. However, the schools which have the Blackboard system are home to the majority of students in both countries.

The results of the research indicate that Moodle is the most used E-learning management system in Ireland with 17 colleges using this program. This result supports a study conducted in 2011 by a group from the University of Liverpool that examined the most important factors

that influence small- and medium-sized higher education colleges and how these factors can impact the way that an open-source program such as Moodle can be used to handle an E-learning system. The 2011 study found that the most important factors in implementing a new system are quality, reliability, support, and cost (Walker, Livadas, & Miles, 2011). Likewise, this study shows the similarity in how smaller institutions in two different countries prefer an open-source system such as Moodle. Small and private colleges often have a limited budget which forces them to look for cheaper E-learning solutions.

The type of education system at a university can play a significant role in the decision to adopt an E-learning system. The results of this study show that some Saudi and Irish educational institutions do not use E-learning extensively. In addition, colleges in both countries continue to use traditional methods of learning and are not eager to move to an E-learning management system. For example, in Ireland, educational institutions such as the Shannon College of Hotel and Management and the National College of Art & Design do not use an E-learning management system because they prefer to train students in a practical way that is not conducive to this type of system. In Saudi Arabia, private medical colleges such as Batterjee Medical College and Riyadh College of Dentistry and Nursing do not use E-learning for the same reason. However, this issue requires further investigation.

The research was designed to discover, analyse, and present information about which LMS was most used in Ireland and Saudi Arabia. It was also designed to show the similarities and differences between E-learning implementation in Ireland and Saudi Arabia. The research found that the most used LMS in Saudi Arabia was Blackboard while the most used LMS in Ireland was Moodle. These results provide clear evidence that most colleges with a large enrolment prefer to use an outside vendor such as Blackboard to fulfil their E-learning management needs. In addition, the research showed that 26% of academic staff in Saudi Arabia and 46% academic staff in Ireland used an open-source system like Moodle. Moreover, 36% of Irish students and 22% of Saudi students used an open-source system. The research also found that there are a small number of colleges in both countries that do not use a Learning Management System of any kind. The results provide many questions that can become the foundation for further research including determining why some colleges prefer a commercial system for E-learning, why other institutes prefer open-source systems, and how to develop E-learning systems

that cover the needs of all educational systems.

For the purposes of this research project, a “small” university was defined as one as having less than (10.000) students, a “medium” university was defined as having between (10.000) and (15.000) students, and a “large” university was defined as having more than (15.000) students.

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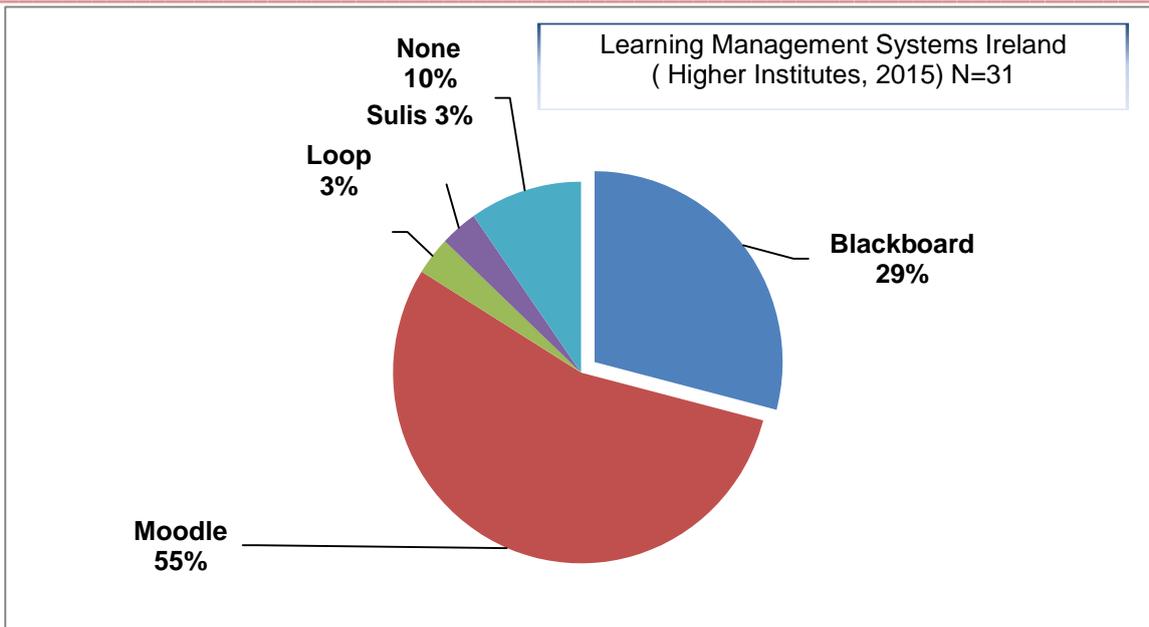


Figure 1. Learning Management System use in Irish universities

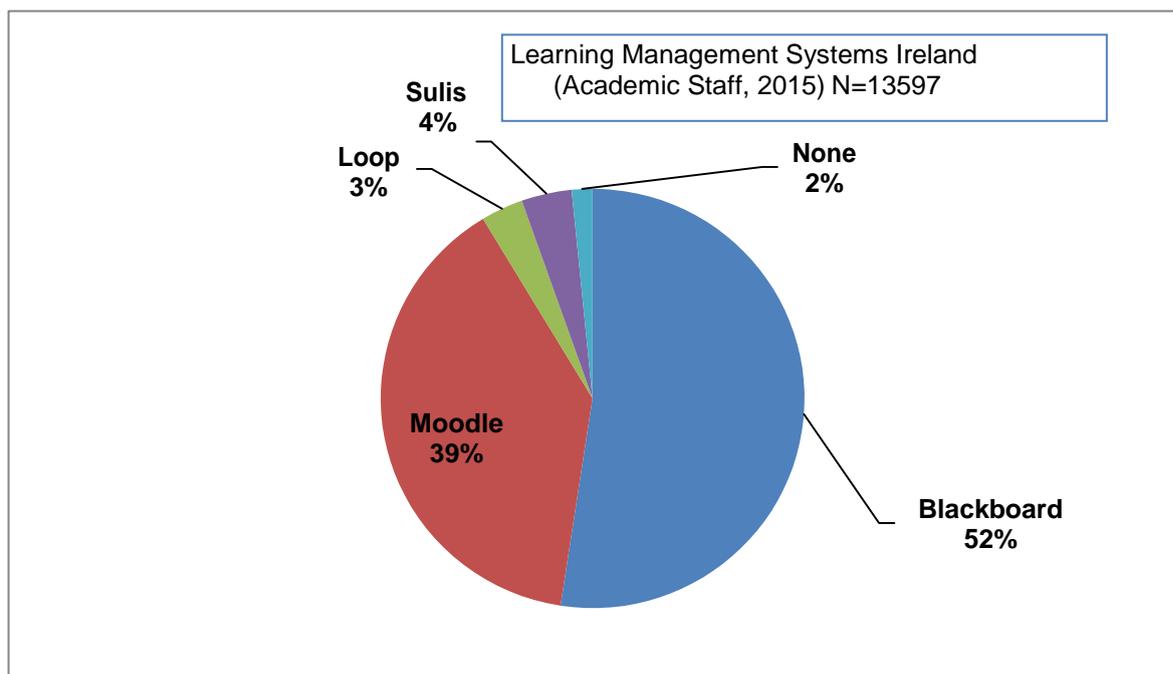


Figure 2. Percentage of teachers using each type of Learning Management System in Irish universities

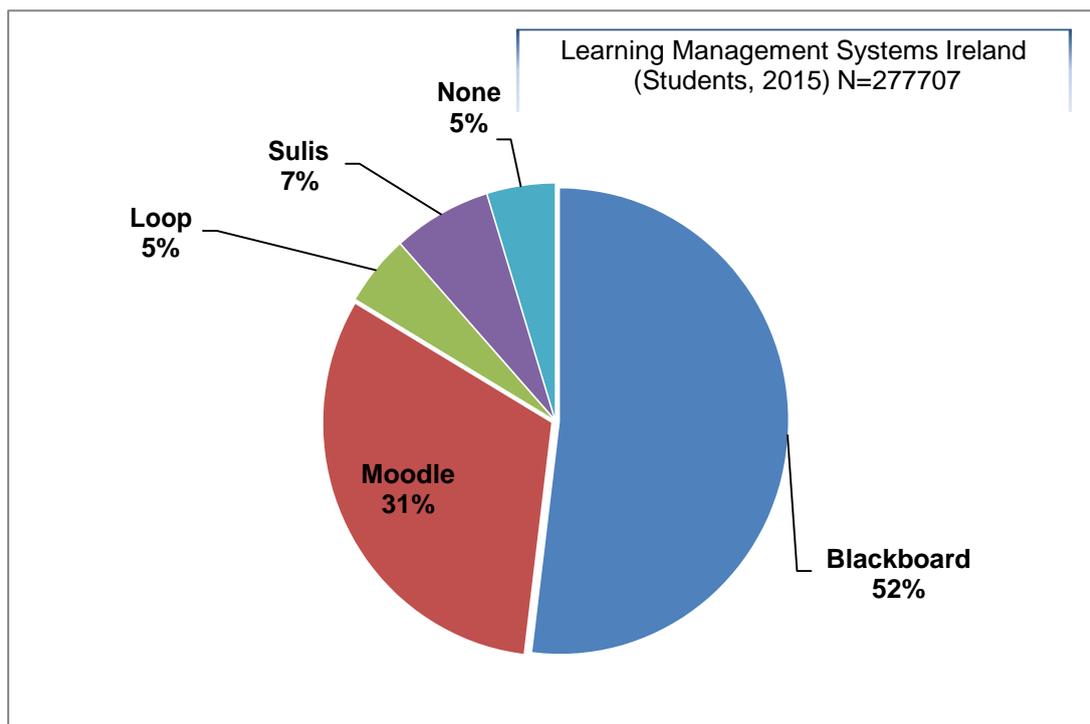


Figure 3. Percentage of students using each type of Learning Management System in Irish universities

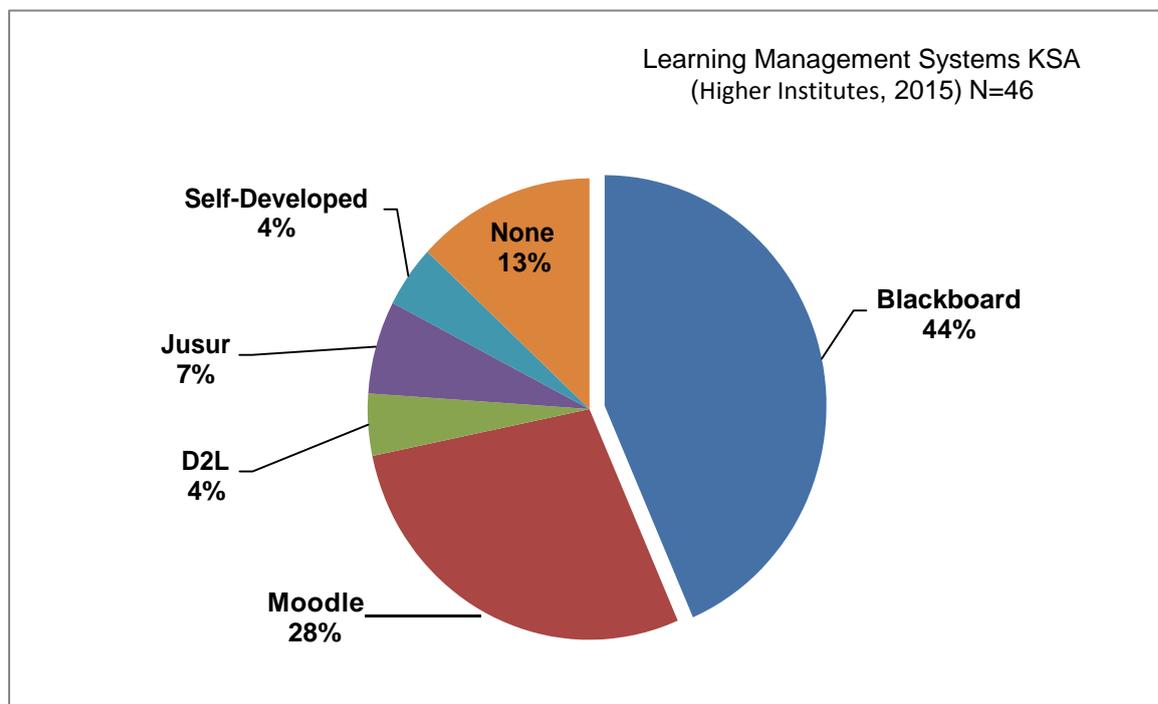


Figure 4. Learning Management System use in Saudi universities

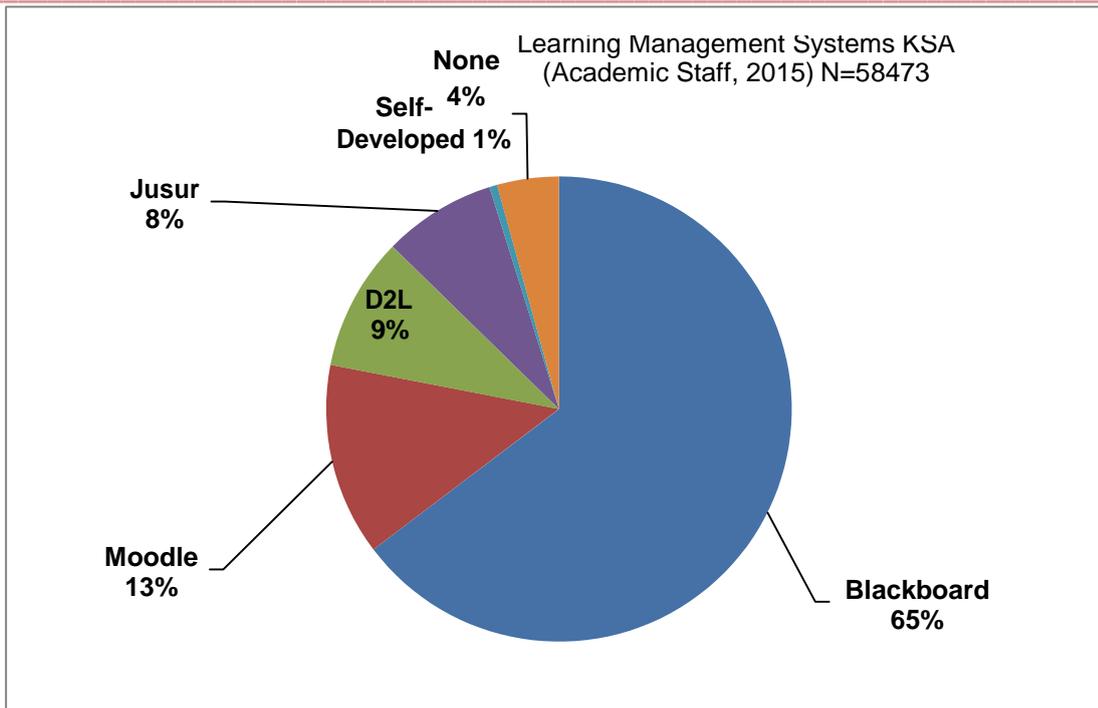


Figure 5. Percentage of teachers using each type of Learning Management System in Saudi universities

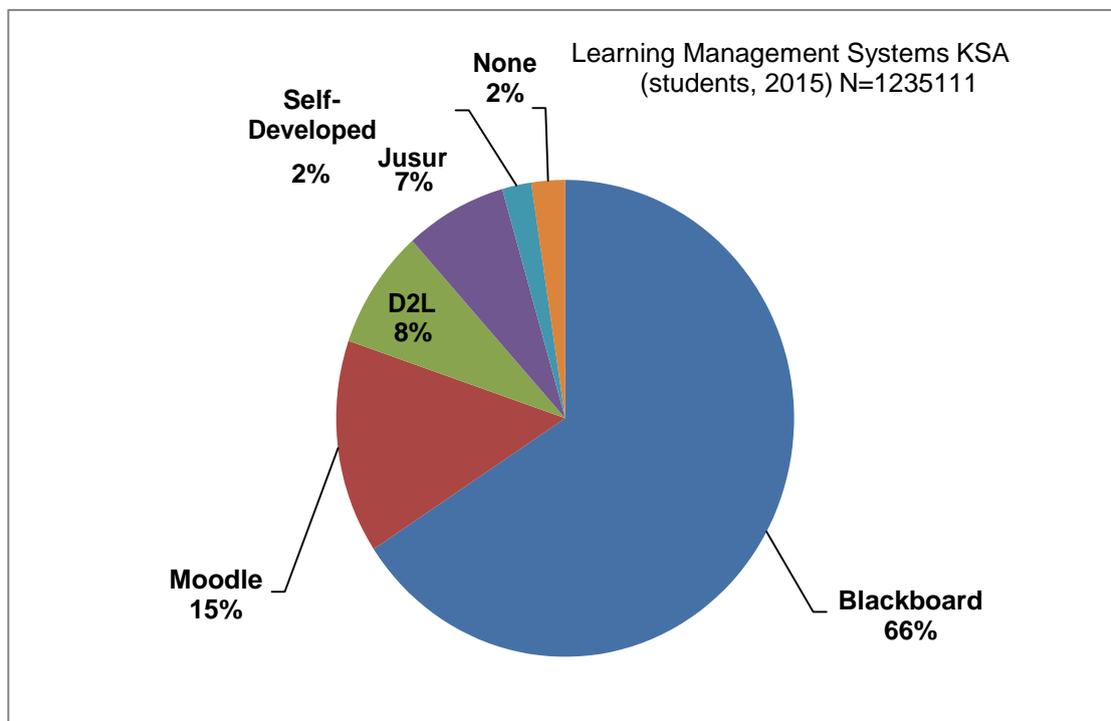


Figure 6. Percentage of students using each type of Learning Management System in Saudi universities

| Irish Universities                                    | City         | Website                   | Student Number | Academic Staff Number | LMS        |
|---|--------------|---------------------------|----------------|-----------------------|------------|
| All Hallows College                                   | Dublin       | www.allhallo ws.ie        | 700            | Unknown               | Moodle     |
| Athlone Institute of Technology                       | Westmeath    | www.ait.ie                | 5200           | 250                   | Moodle     |
| Cork Institute of Technology                          | Cork         | www.cit.ie                | 17000          | 824                   | Blackboard |
| Dublin City University                                | Dublin       | www.dcu.ie                | 12000          | 440                   | Loop       |
| Dublin Institute of Technology                        | Dublin       | www.dit.ie                | 22000          | 1198                  | Blackboard |
| Dún Laoghaire Institute of Art, Design and Technology | Dublin       | www.iadt.ie               | 2000           | 340                   | Blackboard |
| Dundalk Institute of Technology                       | Dundalk      | www.dkit.ie               | 5000           | 600                   | Moodle     |
| Galway-Mayo Institute of Technology                   | Galway-Mayo  | www.gmit.ie               | 9000           | 623                   | Moodle     |
| Institute of Public Administration                    | Dublin       | www.ipa.ie                | 3500           | 100                   | Moodle     |
| Institute of Technology Blanchardstown                | Dublin       | www.itb.ie                | 2500           | 178                   | Moodle     |
| Institute of Technology Carlow                        | Carlow       | www.itcarlow.ie           | 6500           | 88                    | None       |
| Institute of Technology Sligo                         | Sligo        | itsligo.ie                | 6500           | 300                   | Moodle     |
| Institute of Technology Tallaght                      | Dublin       | www.it-tallaght.ie        | 4762           | 269                   | Moodle     |
| Institute of Technology, Tralee                       | Kerry        | www.ittralee.ie           | 3500           | 377                   | Blackboard |
| Letterkenny Institute of Technology                   | Letter Kenny | www.lyit.ie               | 3000           | 450                   | Blackboard |
| Limerick Institute of Technology                      | Limerick     | www.lit.ie                | 6500           | 500                   | Moodle     |
| Marino Institute of Education                         | Dublin       | www.mie.ie                | 900            | 120                   | Moodle     |
| Mary Immaculate College                               | Limerick     | www.mic.ul.ie             | 3500           | 150                   | Moodle     |
| Maynooth University                                   | Maynooth     | www.maynoothuniversity.ie | 10570          | 466                   | Moodle     |
| National College of Art & Design                      | Dublin       | www.ncad.ie               | 1300           | 110                   | None       |
| National College of Art and Design                    | Dublin       | www.ncad.ie               | 1311           | 88                    | Moodle     |
| National College of Ireland                           |              | www.ncirl.ie              | 5000           | 220                   | Moodle     |
| National University of Ireland, Galway                | Galway       | www.nuigalway.ie          | 17318          | 1078                  | Blackboard |

|                                      |           |                        |       |      |            |
|--------------------------------------|-----------|------------------------|-------|------|------------|
| Royal College of Surgeons in Ireland | Dublin    | www.rcsi.ie            | 3360  | 470  | Moodle     |
| Saint Patrick's College, Maynooth    | Maynooth  | www.maynoothcollege.ie | 470   | 20   | Moodle     |
| Shannon College of Hotel Management  | Shannon   | www.shannoncollege.com | 397   | 17   | None       |
| University College Cork              | cork      | www.ucc.ie             | 16241 | 762  | Blackboard |
| University College Dublin            | Dublin    | www.ucd.ie             | 30870 | 1322 | Blackboard |
| University of Dublin                 | Dublin    | www.tcd.ie             | 16729 | 777  | Blackboard |
| University of Limerick               | Limerick  | www.ul.ie              | 17000 | 521  | Sulis      |
| Waterford Institute of Technology    | Waterford | www.wit.ie             | 9500  | 900  | Moodle     |

Table 1. List of universities examined Ireland

| Saudi Universities                                 | City    | Website                     | Student number | Academic Staff number | LMS             |
|--|---------|-----------------------------|----------------|-----------------------|-----------------|
| Al Baha University                                 | Albaha  | www.bu.edu.sa               | 27344          | 1226                  | Blackboard      |
| Al Farabi College of Dentistry and Nursing         | Riyadh  | www.alfarabi.edu. sa        | 1773           | 111                   | Moodle          |
| Al Jawf University                                 | Al Jawf | www.ju.edu.sa               | 21576          | 962                   | Jusur           |
| Al Majmaah University                              | Majmaah | www.mu.edu.sa               | 20092          | 1123                  | D2L             |
| Al Yamamah University                              | Riyadh  | www.alyamamah. edu.sa       | 2359           | 98                    | Moodle          |
| Alfaisal University                                | Riyadh  | www.alfaisal.edu            | 1470           | 93                    | Moodle          |
| Almaarefa College for Science and Technology       | Riyadh  | www.mcst.edu.sa             | 2172           | 101                   | Moodle          |
| Arab East Colleges                                 | Riyadh  | www.arabeast.ed u.sa        | 771            | 38                    | None            |
| Arab Open University                               | Riyadh  | www.arabou.org. sa          | 22550          | 85                    | self- developed |
| Batterjee Medical College                          | Jeddah  | www.bmc.edu.sa              | 1990           | 205                   | None            |
| Dar Al Uloom University                            | Riyadh  | www.dau.edu.sa              | 2684           | 85                    | Moodle          |
| Dar Al uloom University                            | Riyadh  | www.dau.edu.sa              | 2684           | 85                    | None            |
| Dar Al-Hekma College                               | Jeddah  | www.daralhekma. edu.sa      | 1471           | 419                   | None            |
| Effat University                                   | Jeddah  | www.effatuniversi ty.edu.sa | 2359           | 85                    | Blackboard      |
| Fahd bin Sultan University                         | Tabuk   | www.fbsu.edu.sa             | 1704           | 60                    | Moodle          |
| Ibn Sina National College for Medical Studies      | Jeddah  | www.ibnsina.edu. sa         | 2794           | 231                   | Self- developed |
| Islamic University of Medina                       | Medina  | www.iu.edu.sa               | 17177          | 710                   | Jusur           |
| Jazan University                                   | Jazan   | www.jazanu.edu. sa          | 50356          | 2921                  | Jusur           |
| Jubail Industrial College                          | Jubail  | www.jic.edu.sa              | 3024           | 192                   | Blackboard      |
| King Abdulaziz University                          | Jeddah  | www.kau.edu.sa              | 177234         | 7072                  | Blackboard      |
| King Abdullah University of Science and Technology | Thuwal  | www.kaust.edu.s a           | 1200           | Unknown               | Blackboard      |
| King Fahd University for Petroleum and Minerals    | Dhahran | www.kfupm.edu.s a           | 10124          | 1026                  | Blackboard      |
| King Faisal University                             | Hasa    | www.kfu.edu.sa              | 134942         | 1511                  | Blackboard      |

|  |               |                     |       |      |            |
|--|---------------|---------------------|-------|------|------------|
| King Khalid University                         | Abha          | www.kku.edu.sa      | 59225 | 3377 | Blackboard |
| King Saud University                           | Riyadh        | www.ksu.edu.sa      | 61412 | 6322 | Blackboard |
| Najran University                              | Najran        | www.nu.edu.sa       | 17114 | 1160 | Blackboard |
| Northern Borders University                    | Arar          | www.nbu.edu.sa      | 12613 | 601  | Blackboard |
| Prince Mohammad University                     | Khobar        | www.pmu.edu.sa      | 3592  | 142  | Blackboard |
| Prince Sultan College For Tourism and Business | Jeddah        | www.pscj.edu.sa     | 734   | 42   | Moodle     |
| Prince Sultan University                       | Riyadh        | www.psu.edu.sa      | 3579  | 288  | Moodle     |
| Princess Nora bint Abdul Rahman University     | Riyadh        | www.pnu.edu.sa      | 39610 | 1767 | Blackboard |
| Qassim University                              | Alqassim      | www.qu.edu.sa       | 63727 | 3446 | Moodle     |
| Riyadh College of Dentistry and Pharmacy       | Riyadh        | www.riyadh.edu.s a  | 3119  | 121  | None       |
| Salman bin Abdulaziz University                | Kharj         | www.sau.edu.sa      | 23519 | 1850 | Blackboard |
| Saudi Electronic University                    | Riyadh        | www.seu.edu.sa      | 5330  | 56   | Blackboard |
| Shaqra University                              | Riyadh        | www.su.edu.sa       | 19308 | 1643 | None       |
| Tabuk University                               | Tabuk         | www.ut.edu.sa       | 30578 | 1462 | Moodle     |
| Taibah University                              | Medina        | www.taibahu.edu. sa | 61401 | 1521 | Moodle     |
| Taif University                                | Taif          | www.tu.edu.sa       | 51941 | 2538 | Blackboard |
| Technical and vocational training corporation  | many campuses | www.tvtc.gov.sa     | 97727 | 4679 | Blackboard |
| Umm Al-Qura University                         | Mecca         | www.uqu.edu.sa      | 79845 | 4295 | D2L        |
| University College of Jubail                   | Jubail        | www.ucj.edu.sa      | 4426  | 295  | Blackboard |
| University of Dammam                           | Dammam        | www.uod.edu.sa      | 40301 | 2692 | Blackboard |
| University of Hail                             | Hail          | www.uoh.edu.sa      | 39211 | 1231 | Blackboard |
| Yanbu Industrial College                       | Yanbu         | www.yic.edu.sa      | 4087  | 322  | Moodle     |
| Yanbu University College                       | Yanbu         | www.yuc.edu.sa      | 2862  | 184  | Moodle     |

Table 2. List of universities examined in Saudi Arabia