

# Online Learning Interaction Continuum (OLIC): A Qualitative Case Study

Mohamad Hisyam Mohd. Hashim

University of Tun Hussein Onn Malaysia (UTHM), Malaysia

E-mail: mhisyam@uthm.edu.my

Yusup Hashim

University of Pendidikan Sultan Idris (UPSI), Malaysia

E-mail: yusup@upsi.edu.my

Ahmad Esa

University of Tun Hussein Onn Malaysia (UTHM), Malaysia

E-mail: ahmad@uthm.edu.my

Received: May 10, 2010 Accepted: May 26, 2010 doi:10.5539/ies.v4n2p18

## Abstract

The purpose of this research project is to explore the use of Blackboard Learning System (BLS) in enhancing interaction in online teaching and learning environment. This paper discusses the conceptual framework of Online Learning Interaction Continuum (OLIC) which explains the five levels of interactions. The OLIC was conceptualized as a result of a qualitative case study conducted at one of the university in Malaysia. The OLIC model consists of five levels of interaction beginning with level 1, the lowest level through level 5, the highest level. The levels are lecturer-interface interactions, lecturer-content interactions, lecturer-support interactions, learner-interface interactions and lecturer-context interactions. They state the challenges faced in the interactions such as facilities, time, knowledge and skill and policies and procedures, participation, interest, online instructional strategies and content. The research project demonstrated the importance of the level of interactions to implement Learning Management System (LMS) in teaching and learning in the higher institutions of learning.

**Keywords:** OLIC, Lecturer-interface interactions, Lecturer-content interactions, lecturer-support interactions, Learner-interface interactions, Lecturer-context interactions, Lecturer-support interactions

## 1. Introduction

Blackboard Learning System (BLS) is one of the commercially available Learning Management System (LMS) that provides the learning experience for lecturers or students to interact online. In the study of online interaction using *Blackboard* as the learning management system conducted at the university, the researcher was able to conceptualize a model known as the Online Learning Interaction Continuum (OLIC). The interaction continuum refers to the levels of interactions among lecturers and learners using LMS. The interaction continuum was conceptualized based on interaction theory of Hirumi (2002), Ally (2003) and Anderson (2003) and researcher own observation and involvement in the study. The model can be used as a guideline for planners to start and implement online learning using local or commercial LMS. The levels of interaction will determine the status of the users and the activities involved. On the other hand, the levels of interactions and interactivity in online learning were also influenced by the Roger's theory of innovations (1995). The use or non-use of instructional technology in this case LMS is also attributed to the attributes of the innovation-adoption theory.

## 2. The Purpose of Study

The purposed of this study was to explore, understand and explained the level of interaction in Learning Management System (LMS). There are Lecturer-interface interactions, Lecturer-content interactions, Learner-interface interactions, Learner-interface interactions and Lecturer-context interactions'

## 3. Literature Review

The importance of online learning as an alternative pedagogical mode in higher education is evident in the number of studies that examine its added value to learners, particularly through the widespread use of computer

conferencing (Stephenson, 2001, Fisher, Phelps & Ellis, 2000, Salmon, 2000, Anderson, 2004). Though the Deakin University lecturers expressed a stronger preference for face-to-face teaching than the University of Calgary participants, who equally preferred the online mode, they all recognized and believed in the potential of the online environment. They realized that students were becoming more self-directed and independent, and their own roles as instructors were more facilitative and innovative. The transition to online teaching has made them more reflective about their teaching and more systematic in preparing better quality online resources for both modes of delivery. The importance of using a form of blended learning that combines some face-to-face interaction or technologically mediated synchronous communication, with online interaction, is an important trend in teaching practice for both groups (Stacey & Wiesenberg, 2007).

#### 4. Methodology

The study used qualitative approach in which eighteen participants were observed and interviewed to examine their involvement and interaction in an online learning environment using *Blackboard* learning management system. The participants consist of 8 lecturers, 8 students and 2 ICT coordinators. Data were gathered from the onsite observations, interviews and documents regarding computer facilities and infrastructure. Observations were conducted in the class and computer laboratories. The experience and interpretations from the case study enabled the researcher to conceptualise a model that explain the interaction phenomena. Creswell (2005) interpreted research finding as the overall understanding of the researcher while conducting the research. The understanding of research includes experience in the field that enabled the researcher to create a conceptual model of the study involved. Therefore, the researcher wish to explains the methodology used in understanding the interaction phenomena in LMS by the students and lecturers in higher learning institution.

Qualitative case study enable the researcher to research, observe and analyze certain case, usage process occurred in the real environment. In this research, observation on the teaching and learning process happen. The researcher finds that the teaching and learning process are very active in the lecture room. The most important instrument in a case study is the researcher himself conducting the observation. Such research highly depends on the researcher himself. Researcher understands background and throughly verifies to identify the details related to the problem.

Case study field is small but rather deeper and more qualitative compared to observation. Generally, in this research, the researcher has explored the interaction with the online tools using LMS in University. Qualitative research is meant for understanding phenomena. It is conducted by holistic to display studied element studied in environment to gain researchers' perspective.

The researcher has applied concept explained by Strauss and Corbin (1998) as illustrated in figure 3.2. Methodology covers certain concept in conducting research. Method refers to technique used by the researcher before the coding process occurs. There are two methods which are data collection and data analyzing. Researcher has collected and analyzing the data achieve when he is on the research field and after he is out of the research field. Data collection refers to the technique used by the researcher to gain and collects data which are; observation, interview, document analysis and field note. Data analysis on the other hand refers to data interpretation process gained and collected on the research field. The researcher has done analysis when he is on the research field starting by interviewing the first participant followed by interpreting data at the end of the research phase process.

Micro analysis refers to an analysis process using analytic tool. Coding refers to the process in giving name to certain category or subcategory based on the occurred phenomena as the result of data interpretation. There are three coding levels which are the open coding, axial coding and selective coding. The researcher are using the first and second coding level only.

Analytic tool is a technique used in coding or finding name for category or subcategory. There are two approaches used by the researcher which are by asking question and comparison method. Analysis recording meanwhile refers to the technique and helps in recording all the data that has not and already been interpreted. The researcher has used the NVivo Version 8 for this cause. All the data is kept properly in the database created by the researcher in the software.

#### 5. Sample

In this research, snowball sampling technique and maximum variation sampling strategy has been used. Merriam (1998) explains that those sampling are appropriate for qualitative research. In this qualitative research, sample size cannot be determined in the early research. The researcher determines the suitable sample after being on the research field. Only by sample selection and continuous data analysis till there is no more new information found or no more information redundancy with the one obtain before, then only the process will stop. Figure 1.0 describes the chronology in selecting lecturers and students as participants in the research field. Glaser and Strauss (1967) state

this as the saturation point or 'point of no return'. Guba and Lincoln (1989) states that by conducting research where selection is made thoroughly, develops and serially, saturation can be achieved with participants as much as 12 person and maybe not more that 20 person. Douglas (1985) predicts that after thoroughly interview with 25 participants then only he can achieve the saturate level. Ahmad Zaidi (1999) in his doctorate level research only picks 12 research participants which consist of 2 teachers and 1 student. Azahari (1994) meanwhile in his doctorate level research only picks 7 school headmasters as research participants. In this research, 16 research participants which are two supervisors of universities' e-learning, 6 lecturers and 8 students are selected.

### *5.1 Lecturers as Participant*

Lecturers are part of participants in this research. Starting from the early stage on the research field, researchers planned to pick few participants based on their interaction activeness. However, as a result of the interview with the e-learning supervisors, the researcher are unable to classified lecturers based on interacting activeness due to unknown lecturers interaction. Therefore, the researcher has picked six lecturers that have interacted with the tools in LMS from six faculties which are also supervisors to faculty's e-learning and two other lecturers which are not e-learning supervisor. After that, the researcher has picked one of them to observe in detail. There are various types of task for the faculty e-learning supervisor. Some of it is registering username and password for the lecturers so that they can interact with the tools in LMS and plan activities to increase interaction among the lecturers.

The picked lecturer is one of the most active lecturers that have been interacting with the LMS tools in university. He is the most commonly invited lecturer by the university management to present to other lecturer what has been interacts with the tools in LMS when conducting theory subject. However, the researcher makes observation only on one subject which he conducts for 17 weeks on semester II session 2004/2008. Table 1 shows the lecturers and their experience in LMS.

Azman Kadri, aged 29 years old are Johorean. He was a former university student trusted to further studies in master level by scholarship. He is now a lecturer in one of the faculty. Nani Ahmad, aged 32 years old is a highly active lecturer in Reserved Officer Training Unit (ROTU). Came from Kedah. Already married with one of university's staff and gifted with a child, and staying in one of the neighborhood in Parit Raja. Already worked in university for four years and once joined LMS training session organized by university. He was experienced in interacting with LMS tools version 5.0 and version 6.0.

Fauzi Kadri meanwhile is 33 years old has been working in university for 3 years and experienced teaching in Polytechnic in Sarawak for 2 years. He is former university's student in degree and master level. Had followed training using LMS organized by university. Jasmin binti Ismail is lecturer and supervisor of faculty's e-learning. She is responsible in interaction increment among the staff in her faculty. Saiful Radzi, Maizam Ali and Kamal Arsyad are also supervisor of faculty's e-learning that responsible in increasing interaction with the tool in LMS as well as middle person between faculty and Centre for Teaching and Learning. Rahman Jumim, 45 years old is one of the highly intreracting lectrurer. After 10 years serving in university. Now he is the Head for one of the Center of Excellence. He origins from Parit Raja. Had worked as teacher is few schools, Ministry of Education, Malaysia and then university.

He is also one of the lecturer that early serve in university and contribute much in university's teaching and learning increment. He is one of the LMS Comitee in university and also one of the conductor and lecturer for LMS training in university for the academic staff of the university.

### *5.2 Student as Participant*

Starting from the early research stage, students that were going to be picked up could not be identified until the researcher interview the highly active interacting lecturer. Since the researcher already identified lecturer that will act as the main participant, therefore the students under his subject are picked as participants. Totally there were ninety students but only six of them were picked as main participants where details observation will be done. These students are chosen because they had registered to interact with tools in LMS. On the first week in field studies, the researcher was unable to identify which student to be picked as participants. However, after doing observation in class and interviewing the lecturer as well as analyzing the LMS statistic document, those students were picked. All the students that follow his subject were observed generally as an organization. Besides those six students, the researcher has chosen two more students that do not follow his subject but in fact are the final semester student. These two students also had interacted with the tools in LMS. The reason why these two students were picked is to explain generally on the student's interaction with the tools in LMS where their lecturer are also interacting with the tools in LMS and handling course which is providing training to other lecturer. Table 2 shows students and their experience in LMS that were picked as the research participant.

Jalal Zakaria came from Alor Setar Kedah. Son of a factory worker while mother is a fulltime housewife. This graduate from Sekolah Menengah Jenis Kebangsaan Keat Hwa pass with flying colors in Malaysian Certificate of Education (MCE) by getting 7A 3B. He obtains Cumulative Point Average of 3.76 on semester 1 session 2004/2005. Risha Abdullah came from Negeri Sembilan and now living with her friends in inner campus hostel. Her father is a retiree and her mother still working in government department. She has high ambition as an engineer. Involve with the students association and active in introducing Malaysia Engineer Institute to her friends. Obtains Cumulative Point Average of 3.44 on semester 1 session 2004/2005. Amir Tamin is the third child out of five siblings. Came from Kampong Gajah, Perak and now staying in rent house in Parit Raja with his friends. He obtains CPA 2.97 semester 1 session 2004/2005.

Asmadi Zaki came from Kepala Batas, Kedah and is now renting in Parit Raja with Amin Tamin and other friends. His father has retired and his mother is a nurse. He is now active in Reserved Officer Training Unit (ROTU) as a cadet officer. Obtaining CPA 2.64 in semester 1 session 2004/2005. Salina Jamali is the eleventh child from sixteen siblings, came from Air Molek, Melaka and niw staying with her friends in inner campus hostel. Even though she is a girl, she is active in ROTU and managed to maintain CPA 3.41 in semester 1 session 2004/2005. Islahudin Rahim on the other hand came from Pendang, Kedah and now renting a house in Parit Raja with his friends. Third child from four siblings. Obtain CPA 2.82 in semester 1 session 2004/2005. Tarmizi Sadri and Laili Rahman are final semester students. They had interacted with tools in LMS two semesters ago and they had interacted with tools in LMS when taking course handled by Rahman Jumin who is also the supervisor of e-learning for faculty.

### 5.3 Officer in Organization as Participant

Besides lecturer and student, the researcher also picked officer in related organization as the main participant in obtaining the related information. Those officers are as explained in Table 3.

Rahim Jali and Hazly Tarim have 5 years experience in handling LMS in university. He involve directly with LMS. He is an Information System Officer, Information Technology Center. He is the only one scheduled to administer LMS and conducting technical jobs such as maintaining server and purchasing spare parts.

Hazly meanwhile is an Information System Officer, assigned in e-learning unit, Center of Teaching and Learning. Hazly is more focused on the usage of LMS by the lecturer and student. He is assigned to manage LMS training and promotion activity and other related matters involving the lecturer and student.

## 6. Findings and Discussion

The result of the study is a conceptual model is known as Online Learning Interaction Continuum (OLIC). The OLIC model was conceptualized based on the interaction theory of Hirumi (2002), Ally (2003) and Anderson (2003) and researcher own observation and involvement in the study. OLIC explains the stages or levels of online interactions that any online learners need to go through. The OLIC model consists of five levels of interaction beginning with level 1, the lowest level through level 5, the highest level (Figure 1.0). The levels are:

Level 1: Lecturer-interface interactions

Level 2: Lecturer-content interactions

Level 3: Lecturer-support interactions

Level 4: Learner-interface interactions

Level 5: Lecturer-context interactions

Level 1: Lecturer-interface interactions

Level 1 refers to lecturers' interaction with the interface in LMS. Interface consists of user name and password. Lecturers need to log in user name, and type the password in order to go to Level 2. This level marks the beginning of interaction with the learners along the interaction continuum. At this Level, the lecturers need to register to get the user name and password. The user name and the password are created and administered by Information and Communication Technology (ICT) Centre at the University. Every course lecturer needs to have and to know how to use the user name and the password. Otherwise, there will be no interaction and subsequently no online learning.

Level 2: Lecturer-content interactions

Level 2 refers to lecturers' interactions with the content. The content consists of several interactive tools available in LMS and the learning materials developed by the lecturers. In the case of *Blackboard Academic Suite* (2004), there are 22 tools. The tools provided by LMS can be used to interact with the learners as well as to design and develop

online learning materials. The lecturers should be trained to identify and use the tools to develop online learning materials. The online learning materials should be developed using instructional design principles.

#### Level 3: Lecturer-support interactions

The next level along the interaction continuum is lecturers' interaction with support. Supports refer to learners or fellow lecturers involved in the interaction. At this level, online lecturers should use the learning tools as well as the online learning materials developed or downloaded in the LMS to communicate or interact with their learners or fellow lecturers. Without the support given by learners and fellow lecturers, online lecturers may not have any communications either in the form of chats, discussions or forums. Once the interaction is established between the online lectures and support, the chain of interactions are expected to multiply between learners with learners as well as lectures with lecturers at Level 4. The online lecturers need to work closely with the administration of ICT to get more lecturers and students registered in the online LMS. This process will be executed at Level 4.

#### Level 4: Learner-interface interactions

Level 4 refers to learners interactions with interface. Interface refers to the user name and password. At this level, learners may register and use temporary or permanent user name and password to interact with the interface. The subject lecturers should encourage the learners to interact with the online learning tools and learning materials available in the LMS. Learners may use the learning tools such as *content area*, *discussion board*, *announcement*, (*Blackboard*), *course materials*, *communication* and *Assignment (WebCT)* and so on to interact with the subject lecturers and fellow students. It is crucial at this level to download the curriculum content and the learning materials using the relevant learning tools. For example, every subject lecturer is responsible to download the course curriculum, the instructional plan and evaluation in the content area. The subject teacher is also responsible to activate the discussion board or the communication tools so that learners may participate and interact in the discussion either with the subject lecturers or with their fellow learners.

Once the interface is activated by the subject lecturers, learners will gradually go through three types of interactions:

##### 4a: Learner- content interactions

##### 4b: Learners-support interactions

##### 4c: Learners-context interactions

At Level 4a, learners will interact with the content provided by the subject lecturers. The content refers to all the tools available in the LMS. At this Level it is crucial for both the subject lecturers and learners to know how to use and interact with all the learning tools.

At Level 4b, learners will interact with fellow learners and other lecturers to open up the interaction beyond the learner-lecturer level as discussed at Level 3.

At Level 4c, learners have control over the course or subjects offered online. Learners at this Level are competent and are able to use the learning tools to learn the subjects delivered online.

#### Level 5: Lecturer-context interactions

This is the highest level in the interaction continuum. At this Level, the subject lecturers know that learners are able to analyze, evaluate and construct new knowledge online. This is evidenced by the performance of the learners. The subject lecturers are confident that online delivery can help learners to learn independently and produce better results. The application of constructivism as a learning strategy or a philosophy in an online learning environment is favourable at this Level.

## 7. Conclusion

OLIC model is a conceptual framework which explains the 5 levels of interactions among lecturers and learners. It is important to understand the levels or stages of interactions because it forms the basis for the implementation of online Learning Management System (LMS). LMS is becoming popular in higher education and our experience in Malaysia showed little success implementing the online system. Most LMS provides various pedagogical and learning tools to enable the lecturers and learners to interact with the tools. If there is no or lack of interactions among learners, between lectures and learners or between learners and online learning materials, teaching and learning process will be affected. The tools in LMS are designed to facilitate lecturers to teach and learners to learn through the process of active online interactions.

## References

Ally, M. (2003). Foundation of educational theory for online learning. In T. Anderson & F. Elloumi (ed.). *Theory and practice of online learning* (1st. edition). [Online] Available: [http://cde.athabasca.ca/online\\_book](http://cde.athabasca.ca/online_book) (July 3, 2004)

- Anderson, T. (2003). Toward a theory of online learning. In T. Anderson & F. Elloumi (ed.). *Theory and practice of online learning* (1<sup>st</sup> edition). [Online] Available: [http://cde.athabasca.ca/online\\_book](http://cde.athabasca.ca/online_book) (July 3, 2004)
- Anderson, T. (2004). Teaching in an online context. In T. Anderson & Elloumi (Eds.). *Theory and practice of online learning*(pp.33-60). Athabasca University, AB: Creative Commons.
- Blackboard Academic Suite (2004), *Manual Blackboard*. [Online] Available: <http://blackboard.kustem.edu.my/?bbatt=y> (February 20, 2006)
- Creswell, J. W. (2005). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (2<sup>nd</sup> Edition). New Jersey: Pearson.
- Douglas (1985). *Creative Interviewing* . Beverly Hills, CA: Stage Publications
- Fisher, K., Phelps, R., & Ellis, A. (2000). Group processes online: Teaching collaboration through collaborative processes. *Educational Technology & Society*, 3(3). [Online] Available: [http://ifets.massey.ac.nz/periodical/vol\\_3\\_2000/f06.html](http://ifets.massey.ac.nz/periodical/vol_3_2000/f06.html).
- Glaser and Strauss (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago:Aldine.
- Guba and Lincoln (1989). Guba, E.G & Lincon, Y.S (1989). *Fourth Generation Evaluation*. Newbury Park, CA: Stage.
- Hirumi, A. (2002). A framework for analyzing, designing and sequencing planned e-learning interactions. *The quarterly review of distance education*,3(2),141-146
- Ismail A. (1994). *Policy Leadership and school Administration in Florida: Toward a Reconceptualization*. Unpublished Thesis, Florida: Florida State University.
- Johari A. Z. (1999). *Guided and Implementation for Geography in Secondary Education*. Unpublished Thesis, Kuala Lumpur: Universiti Kebangsaan Malaysia.
- Merriam S.B (1998). *Case Study Research In Education : A Qualitative approach* San Francisco USA Jesey Bass.
- Rogers, E. (1995). *Diffusion of innovations* (4<sup>th</sup> edition). Toronto: Free Press.
- Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan.
- Stacey. E & Wiesenberg, F. (2007). A Study of Face-to-Face and Online Teaching Philosophies in Canada and Australia. *Journal of Distance Education*, 22(1), [Online] Available: <http://www.jofde.ca/index.php/jde/article/view/7/488>
- Stephenson, J. (Ed). (2001). *Teaching and learning online: Pedagogies for new technologies*. London: Kogan Page.
- Strauss and Corbin (1998). *Basic of Qualitative Research: Techniques and Procedure For Developing Grounded Theory*. London: Sage Publications.

Table 1. Lecturers and Experience in LMS

No	Name	Experience in LMS
1	Azman	Highly active lecturer
2	Nani	Lecturer
3	Fauzi	Lecturer
4	Jasmin	Lecturer and Supervisor of e-learning at Faculty A
5	Saiful	Lecturer and Supervisor of e-learning at Faculty B
6	Maizam	Lecturer and Supervisor of e-learning at Faculty C
7	Kamal	Lecturer and Supervisor of e-learning at Faculty D
8	Rahman	Lecturer and Supervisor of Faculty E beside handling LMS course in university

Table 2. Students and Experience in LMS

No	Name	Semester	Activeness Status
1	Jalal	4	Very active
2	Risha	4	Active
3	Amin	4	Not so active
4	Asmadi	4	Not active
5	Salina	4	Not active
6	Islahudin	4	Passive
7	Tarmizi	6	Had interact
8	Laili	6	Had interact

Table 3. Officer in Organization

No.	Name	Post Relating with LMS	Permanent Post	Experience
1	Rahim	e-learning supervisor 1	Information System Officer	Administer LMS (Technical) for 5 years
2	Hazly	e-learning supervisor 2	Information System Officer	Administer university's LMS System (Usage) for 5 years

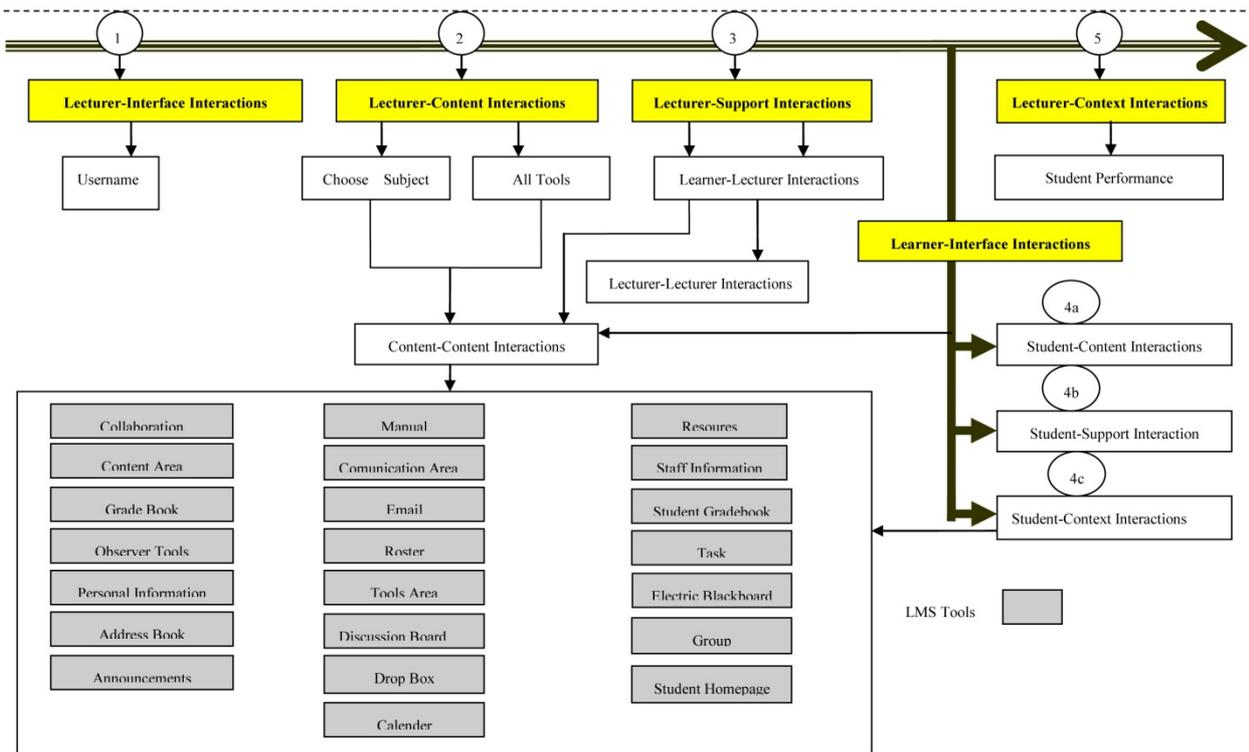


Figure 1. Online Learning Interaction Continuum (OLIC) Model