SQL Collaborative Learning Framework Based on SOA

To cite this article: S Armiati and RM Awangga 2018 J. Phys.: Conf. Ser. 1007 012035

View the article online for updates and enhancements.

Related content
- Sociology: Fulfilment valued over education
  Michael de Laine
- An LDMOS with large SOA and low specific on-resistance
  Du Wenfang, Lyu Xinjiang and Chen Xingbi
- Reduction of vibration by using mechatronical subsystem
  K Biaas and A Buchacz
SQL Collaborative Learning Framework Based on SOA

S Armiati\textsuperscript{1*}, RM Awangga\textsuperscript{2}

\textsuperscript{1}Applied Program of Informatics Management, Politeknik Pos Indonesia
\textsuperscript{2}Applied Bachelor Program of Informatics Engineering, Politeknik Pos Indonesia

E-mail: *sariarmiati@poltekpos.ac.id

Abstract. The research is focused on designing collaborative learning-oriented framework fulfilment service in teaching SQL Oracle 10g. Framework built a foundation of academic fulfilment service performed by a layer of the working unit in collaboration with Program Studi Manajemen Informatika. In the design phase defined what form of collaboration models and information technology proposed for Program Studi Manajemen Informatika by using a framework of collaboration inspired by the stages of modelling a Service Oriented Architecture (SOA). Stages begin with analyzing subsystems, this activity is used to determine subsystem involved and reliance as well as workflow between the subsystems. After the service can be identified, the second phase is designing the component specifications, which details the components that are implemented in the service to include the data, rules, services, profiles can be configured, and variations. The third stage is to allocate service, set the service to the subsystems that have been identified, and its components. Implementation framework contributes to the teaching guides and application architecture that can be used as a landing realize an increase in service by applying information technology.

1. Introduction

Learning has four kinds of domains, namely transmission, acquisition, accretion, and emergence\cite{1}, and also have a good condition of the body with enough sleep\cite{2} and not in the rehabilitation programs\cite{3}. Transmission is the process of delivering information based on evaluation\cite{4} and analysis\cite{5}, knowledge, ideas, and skills to others by way of direct delivery, demonstration and provide guidance. The success of this domain with a domain is 10%. The acquisition provides choice in learning and most relevant for students. This method includes exploring, experimenting, self-instruction, inquiry, and general curiosity \cite{6}. Currently, the acquisition resulted in 20% of what is learned. Accretion has the stages of learning are often gone unnoticed, as the process of learning the language, culture, customs, making assumptions, social rules and behavior. This process can take anywhere and generates 70% success to learn what is learned \cite{7}. Emergence is the result of the development of ideas and understanding patterned and structured like never before, is the result of a merger between thought and interaction. Forms of learning such as synthesis, creativity, intuition, wisdom, and problem-solving\cite{8}. This method does not rely on in terms of time and can generate new knowledge, are intimately associated with inspiration and authenticity (originality). In the practical context of education today, the success of this domain approximately 1-2% of the learning process\cite{7}. The most important component of collaboration is essential in discussions that do work in the process so that the cognitive benefits would be in collaborative learning demands that must be agreed verbally.
between students. In learning the reciprocal interactions among the students used to influence student learning [9]. This learning is a form of collaboration and the fact that in conversations that were articulated by the students, as well as the sharing of understanding of the student, the task of cognitive learning potential. Collaboration students in the class formed the thinking process and provide feedback in the form of social behaviour positive interdependence in the form of giving and receiving help, exchange of resources and information, support each other and work together in the process and progress [10].

The interaction in the classroom needs to be managed to build a deep understanding of learning in students. Moore argues that this management involves three types of learning interactions that[11]: the interaction of students with resources, student interaction with teachers, student interaction with students. The research will focus on the design of information systems as a tool for collaborative learning process (Collaborative Learning / CL), because of the nature of collaboration in learning to encourage students to participate. Research in the CL can be seen from seven perspectives: collaborative interaction control, the task of CL, the theory of learning in collaboration, the design of the CL environment, the role of the students, the domain collaboration and learning methodologies that support collaboration. Seven viewpoints are used as an essential dimension of the CL which should be considered when designing, building and using CL system. The output of this research is a model of the CLF for learning SQL Oracle 10g and publication of scientific articles. The contribution of this study is to provide benefits (deliverables) in the form of a framework for collaborative learning guidelines, which will contain: function and task sharing what is being done in a collaborative learning process, document design procedural framework for collaborative learning and basic knowledge and needs of a collaborative learning system.

2. Method

In the phase of literature, used the theory of collaborative learning, how to build the model and the concept of Service Oriented Architecture (SOA) as an approach and the roles and division of tasks involved in the process of learning business[12] in lattice SQL Oracle 10g[13]. In the phase of analysis of business processes of learning, in general, happens in Information Management Prodi modeled using IDEF modeling to determine the rule, entities, roles, inputs and outputs of each process[14]. From the analysis which is accompanied by a document analysis, pattern of learning outcomes and the results of the questionnaire obtained the aspects that can be considered in the design of the learning framework[15]. In the design phase of collaborative learning framework (CLF)[16], designed a framework which is adaptive to the content and interaction is required in the course SQL Oracle 10g.

SOA Foundation has a life cycle phases as shown in Figure 1 [17]. Modelling is the process of designing the depiction of a business based on business needs and objectives. Describing the design of a business that includes the use of supporting equipment can help display the scenario of "what if" with various business parameters. The process that occurs can be simulated using these parameters to estimate the effect on business processes and IT systems. Designing a business used to communicate business goals with IT organizations that will assemble artifacts as a result of the implementation of the information system design phase. Enterprise architects in collaboration with business analysts to change business plan into a set of business process definition, so that it will clarify the services that are needed for business activities. Assembly phase will include the use of a set of policies and rules to oversee the passage of applications in environmental, operational characteristics important, constraint positioning, dependence on the resources, monitoring the integrity and security of access. Deploy phase in the lifecycle includes the process of creating application environments and task declaration of the application. This includes determining the resource dependency of application, operating conditions, integrity and access restrictions. Some things to note with regard to the construction of infrastructure and the environment is a service that has been provided to support the application, then that should be considered is the appropriate platform for user interaction, the flow of business
processes, business services, service access and logical flow of information. Phase manage includes task, technology, and software used to manage and supervise the application assets, such as services and business processes that run in a production environment. Manage phase will also include the management of the business model, the placement of the operational environment that meets business goals and to measure the success or failure of your business objectives. SOA Governance is critical for SOA projects, governance helps in the monitoring plan that will be carried out. SOA Governance has four objectives such as make a decision, define the value of business services, managing the life cycle of business assets and measure effectiveness.

![Figure 1. IBM SOA Foundation Lifecycle [17].](image)

3. **Experimental setup**
It has a theory and practical major. In some subjects that require skills, even more, practice hours than the hours of theory[18]. Most students actively participating in the learning process because of the presence of students is always controlled by the Warning Letter (SP). Students are also encouraged to be active in the process with given tasks independently by lecturers[19]. As control of the material submitted SQL Oracle 10g, professors are required to make Satuan Acara Perkuliahan (SAP) and the Outline of Teaching Program (GBPP). For the same courses, but are taught by professors who are different, then SAP and GBPP arranged to be the same. With SAP and GBPP same students are expected to get a relatively uniform material. Lecturers who do not have an academic position will be accompanied by lecturers who already have an academic position which acts as the coordinator of the course. To control the presence of lecturers and the material being taught, after giving the lecture the lecturer is required to put a signature on the attendance sheet. During this time the presence of a lecturer in the Department of Information Management is quite good with the attendance of lecturers mostly close to 100%, or an average of 99%. Evaluation of the learning process applied to both the faculty and the students [20]. The evaluation of the students consists of the provision of initial tests and practice tests every lab meeting, giving a warning letter related to absenteeism, a warning letter related to the Achievement Index (IP) students were substandard, and the provision of Card Study Results at the end of the semester. Evaluation of the lecturer's Database 2 (Oracle 10g) is done by giving questionnaires to students to assess faculty performance distributed at the end of the semester. Once the service is identified then do the classification stages.

Analysis Subsystem activity is used to determine subsystem involved and dependence as well as the flow between the subsystems. Subsystem using use case analysis to identify the domain decomposition service and manufacturing object model that represents internal jobs and design
service. Use case that is designed to have two domains, the domain administration with staff department of Badan Administrasi Akademik dan Kemahasiswaan (BAAK) and domain management majors. The model consists of a collaboration that took solicitation models and team models, they both request and response exchange, solicitation model is a model of time management departments need information that is managed and may have to involve other units to make the needed information. In the subsequent activity carried details of the components that are implemented in the service to include the data, rules, services, profiles can be configured, and variations. Messages and events specifications and management definition occur in Component Specifications phase. The Allocation Service stage is to establish the service of the subsystems that have been identified and its components. Realisation Service stage determines which software can realize the service. This software can be taken from the existing customisation or rebuilt. Other options may include the integration, transformation, subscription or outsourced. At this stage determined the extent to which the modules of existing systems (legacy) will be used to realize the service and the service which will be built from scratch. Realisation service will be proposed as the development of further research.

4. Proposed Framework
The result is designing collaborative learning-oriented framework fulfilment service in teaching SQL Oracle 10g as below contained in figure 2. Figure 3 as a collaboration framework fulfilment service on the organization of learning SQL Oracle has three main components consists of outcome, process and foundation.

![Figure 2. CLF for SQL Oracle 10g.](image)

4.1. Outcome
Outcomes are the conditions desired by the community, in this case, is a student and lecturer SQL Oracle 10g. These results reflect the success in learning and evaluation to achieve the vision of collaboration that produced a quality score of students who achieved at the end of the semester, the value of certification testing SQL database Oracle 10g and value knowledge data use an enterprise-scale database.

4.2. Process
The main activity of the university is organizing academic activities with the aim of producing graduates who can meet the demands of the industry. In order to provide optimum satisfaction to stakeholders, universities need to plan all the activities based on its resources. In Oracle 10g SQL
teaching needs to be mastered a theoretical understanding of the Oracle database architecture as work environment, rules regarding data, security, privilege, and syntax as well as the ability of the students practice and execute SQL commands in Oracle 10g.

4.3. Foundation
Foundation is an underlying component of all business processes that occur in academic activities. Each college has a vision and mission that will be used as guidance for the preparation of the vision and mission at the department level to set a specific goal achievement majors. Interest will then be declared measures achievement in the strategic planning department. Strategic planning can be expressed again in a more functional as Satuan Acara Perkuliahan (SAP) and Acara Praktikum (AP) in the course SQL Oracle 10g, to guide instructional objectives that must be accomplished students. They are composed of the fundamental SQL learning plan.

5. Conclusions
This study has proposed a model that can define the functional requirements and the need for technology on a number of the identification service that will be met. Application of collaborative learning framework as a result of the research have the opportunity contributions. Development of collaborative learning framework that is based on the concept of service-oriented and collaborative propose a model service system, application architecture and formal documentation of functional requirements for the identification services required. Implementation framework contributes to the teaching guides and application architecture that can be used as a landing realize an increase in service by applying information technology and in the development of information systems for internal management majors. Further results from the study can be used as a basis for planning for the development of database universities for the purpose of evaluation and accreditation.

References
[1] Khan, S.R. 2017 Problems and Challenges for the First Generation Learners International Journal of Applied Linguistics and English Literature. 6 p 318-332
[2] Yulita, I.N., Purwani, S., Rosadi, R. and Awangga, R.M. 2017 A quantization of deep belief networks for long short-term memory in sleep stage detection 2017 Advanced Informatics, Concepts, Theory, and Applications (ICAICTA), 2017 International Conference on (IEEE) p 1-5
[3] Awangga, R.M., Fathonah, N.S. and Hasanudin, T.I. 2017 Colenak: GPS tracking model for post-stroke rehabilitation program using AES-CBC URL encryption and QR-Code 2017 2nd International conference on Information Technology, Information Systems and Electrical Engineering (ICITISEE) (IEEE) p 255-260
[4] Pane, S.F., Awangga, R.M. and Azhari, B.R. 2018 Qualitative Evaluation of RFID Implementation on Warehouse Management System TELKOMNIKA (Telecommunication Computing Electronics and Control) 16
[5] Awangga, R.M., Pane, S.F., Tunnisa, K. and Suwardi, I.S. 2018 K Means Clustering and Meanshift Analysis for Grouping the Data of Coal Term in Puslitbang tekMIRA TELKOMNIKA (Telecommunication Computing Electronics and Control) 16
[6] Passi, A. and Vahtivuori, S. 1998 From cooperative learning towards communalism Aspects of Media Education* Strategic Imperatives in the Information Age. University of Helsinki. Department of Teacher Education. Media Education Centre. Media Education Publication 8 p 259-273
[7] Prince, M. 2004 Does active learning work? A review of the research Journal of engineering education 93 p 223-231
[8] Sternberg, R.J. 2005 A model of educational leadership: Wisdom, intelligence, and creativity, synthesized International Journal of leadership in Education 8 p 347-364
[9] Nelson, J.R. and Roberts, M.L. 2000 Ongoing reciprocal teacher-student interactions involving disruptive behaviors in general education classrooms *Journal of Emotional and Behavioral Disorder* 8 p 27-37

[10] Gokhale, A.A. 1995 Collaborative learning enhances critical thinking *Digital Library and Archives of the Virginia Tech University Libraries*

[11] Smith, C.R. 2003 Learning disabilities: The interaction of students and their environments (Allyn & Bacon)

[12] Marchman, J.F., Jenkinson, L.R. and Page, G.J. 2001 Managing international academic design collaboration *International Conference on Engineering Education*

[13] Laskey, K.B. and Laskey, K 2009 Service oriented architecture *Wiley Interdisciplinary Reviews: Computational Statistics* 1 p 101-105

[14] Indonesia, P.R. 2005 Peraturan Pemerintah Republik Indonesia Nomor 19 tahun 2005 Tentang Standar Nasional Pendidikan (Departemen Pendidikan Nasional Republik Indonesia)

[15] Klemm, W. 1994 JVME v21n1: Using a Formal Collaborative Learning Paradigm for Veterinary Medical Education *JVME* 21

[16] Panian, Z. 2007 Proceedings of the 2007 Collaboration as an imperative of application quality improvement *annual Conference on International Conference on Computer Engineering and Applications* (World Scientific and Engineering Academy and Society(WSEAS)) p 106-111

[17] Keen, M., Ackerman, G., Azaz, I., Haas, M., Johnson, R., Kim, J. and Robertson, P. 2006 Patterns: SOA Foundation-Business Process Management Scenario *IBM WebSphere Software Redbook*

[18] Soehendro, B. 2002 Kerangka Pengembangan Pendidikan Tinggi Jangka Panjang 1996-2005 (Departemen Pendidikan dan Kebudayaan, Direktorat Jenderal Pendidikan Tinggi)

[19] Brodjonegoro, S. 2005 Tanya Jawab Seputar Unit Pengembangan Materi dan Proses Pembelajaran di Perguruan Tinggi *Jakarta: Depdiknas* p 10-37

[20] Walker, H.M. 1997 Collaborative learning: a case study for CS1 at Grinnell College and Austin *ACM SIGCSE Bulletin* 29 p 109-213