



MINISTRY OF MANPOWER

Student Centered Learning Strategies in Colleges of Technology

Consensual Approach

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Version Control Table

A. Document development details and summary of revisions

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Acronyms:

ADs: Assistant Deans
 CATS: Classroom Assessment Techniques
 CoTs: Colleges of Technology
 CRD: Curriculum Review and Development
 ETC: Educational Technology Center
 GA: Graduate Attributes
 HoDs: Heads of Academic Departments
 HoCs: Heads of English Language Center and Educational Technology Center.
 LO: Learning Outcomes
 MOOCS: Massive Open Online Courses
 OER: Open Educational Resources
 SCL: student Centered Learning

1. Introduction

Student Centered Learning (SCL) approach encourages students to become active learners rather than being passive as in the traditional teacher-centered learning approach. SCL is in line with the famous Chinese principle of Confucius; “I hear and I forget, I see and I remember, I do and I understand”. Students should be allowed to do most of the learning tasks to let them fully understand. SCL motivates students to become more responsible for their learning by giving them the opportunity to share power with the lecturer and become more involved in the different aspects of the teaching –learning process. The teacher role would transform from being a teaching controller to a learning facilitator;

“from being the ‘sage on the stage’ to the ‘guide on the side’, (King, 1995)

SCL allows students to become more autonomous and self-directed in developing their understanding and learning, and become critical thinkers and active life-long learners.

Recent researches and practices in SCL proved that the approach creates a more effective learning environment and makes students more active, creative and lifelong learners^(1, 2, 3, .14). Based on the important role of the SCL to promote students’ learning, develop their competencies, and empower them to become an active and responsible workforce, Colleges of Technology made SCL as a primary obligation in the statement of its Mission:

“To deliver high quality student centered education that provides competitive graduates who enter the labour market with confidence, strong technological and personal skills, prepared for a life of contribution and success”

This document discusses the expectation about SCL in CoTs; the strategies and the possible implementation steps to be taken to achieve its Mission. The proposal is based on the need to design and implement effective learning environments centered on students to allow them to become more responsible, active, creative and lifelong learners. The purpose of the document is to make the staff and students aware of the importance of student centered learning and show them how this can be achieved in CoTs.

2. SCL Definition

Student –centered learning comes in different forms, most are interchangeable with a general objective of keeping the student as the focus of the teaching-learning-assessment process. Some of the commonly used approaches are ^(1,2,3,, 17)

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| <input type="checkbox"/> Learner - centered teaching | <input type="checkbox"/> Peer led team learning |
| <input type="checkbox"/> Experiential learning | <input type="checkbox"/> Team-based learning |
| <input type="checkbox"/> Personalized learning | <input type="checkbox"/> Peer instruction |
| <input type="checkbox"/> Self-regulated learning | <input type="checkbox"/> Inquiry guided learning |

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| <input type="checkbox"/> Active learning | <input type="checkbox"/> Just-in-time teaching |
| <input type="checkbox"/> Collaborative learning | <input type="checkbox"/> Small group learning |
| <input type="checkbox"/> Inquiry-based learning | <input type="checkbox"/> Proficiency based learning |
| <input type="checkbox"/> Cooperative learning | <input type="checkbox"/> Project-based learning |
| <input type="checkbox"/> Problem-based learning | <input type="checkbox"/> Question-directed instruction |

A literature review on 28 studies made by Din and Wheatley, (2007) revealed that:

“Main findings of the review indicated that the student centered teaching approach took a variety of forms, or it was individually defined, and wide differences were also found in the main findings of the studies” (Din and Wheatley, 2007, pp.1).

It seems that there is no specific definition for SCL, however O’Neill and McMahon, (2005) summarized three main views on SCL:

“In summary, it appears from the literature that some view student–centered learning as: the concept of the student’s choice in their education; others see it as the being about the student doing more than the lecturer (active versus passive learning); while others have a much broader definition which includes both of these concepts but, in addition, describes the shift in the power relationship between the student and the teacher” (O’Neill and McMahon, 2005, pp. 29)³

O’Neill and McMahon also perceive the implementation of SCL in practice as a continuum (something that is ongoing and changing slowly over time) from the end of the teacher centered learning to the end of realizing the three concepts of SCL mentioned above.

Colleges of technology perceive SCL as ***a long standing concept to convert students from being dependent to responsible, active, creative, influential, value driven, and life –long learners.*** CoTs also believe in the gradual transformation from teacher – centered learning to SCL taking into consideration the challenges associated with the enhancement of SCL environment, students and teachers’ readiness and ingenuity.

3. SCL Objectives

Irrespective of the approach used to denote for SCL, the main SCL objectives which will benefit students are the following ^{(1,2,...13):}

- Shift the learning responsibility to students under the guidance of the teacher,
- Develop confidence in students,
- Allow students to make decisions on what and how they learn (in relation to contents, not outcomes),
- Understand what to expect from their studies,
- Increase student participation,
- Foster deep learning and understanding,
- Foster intellectual development of students,
- Develop problem based learning,

- Practice self-regulated learning,
- Acquire enhanced problem-solving skills using critical thinking,
- Develop the ability to search and use appropriate resources,
- Develop learning autonomy to adopt self-learning methods,
- Work in collaboration with other groups of learners,
- Become a contributor and role player rather than being a passive receiver,
- Acquire and enhance social and ethical skills by acting as a Team Player,
- Enhance oral, written and other communication skills,
- Nurture self-motivation,
- Foster self-assessment measures and the ability to assess one's own strengths and weaknesses,
- Develop strategies to monitor and improve self- learning,
- Develop academic skills in congruence with workplace skills,
- Develop life-long learning skills and reading interests,
- Create new knowledge and develop skills from existing knowledge,
- Produce work that demonstrates “on-their-own” learning.

4. SCL Strategies of CoTs

Higher educational institutions focus on almost common strategies for the realization of SCL. In the study by O'Neill and McMahon (2005), Glasgow University follow four main SCL strategies. The first is making students more active, the second is making them more aware of why and what they are doing, the third, focuses on the interaction of students through tutorials and group discussion, while the fourth focuses on building transferable skills. In a similar way, CoTs have developed their own SCL strategies that most fit the atmosphere of their staff and students:

4.1 Strategy 1: Enhancing SCL environment

It is changing student learning and staff teaching culture with the provision of resources that support SCL implementation.

4.2 Strategy 2: Shifting the learning role from teacher to student

Making students active, interactive/cooperative, and creative life-long learners taking advantage of technology and open resources.

4.3 Strategy 3: Making students responsible, accountable, and influential

Motivating students to become responsible for their learning and give them the opportunity to have some control to decide, choose, suggest, give constructive feedback (e.g. in the CRD process) and become influential in the teaching-learning and assessment processes.

4.4 Strategy 4: Nurturing confidence and transferable skills within students

It is the responsibility of the teacher, at first, and the administration next, to nurture and inspire personality, confidence, cooperation, and all other transferable skills within students.

5. Realization of SCL Strategies in CoTs

Colleges of Technology believe in an incremental implementation of the four SCL strategies and strive to achieve each of them through the following:

5.1 Strategy 1: SCL Environment Creation

This strategy can be achieved by:

i) **Changing student learning and staff teaching culture**

This represents the most important issue for the activation of SCL approach in a more systematic and consistent manner in CoTs, there is a great need for the motivation of all staff and students to allow them to understand the SCL concept, advantages, challenges, requirements and accept its implementation. This might be the most difficult process which may take several years as the CoTs' teaching staff are with a diversified background and culture, and most of them are educated based on the old teacher-centered learning approach. Also, students entering CoTs are with a background mostly based on the old fashioned spoon feeding education¹⁴.

To change the culture of staff and students over time, CoTs' administration should have a long-lasting approach, in each academic unit and across colleges, for SCL awareness creation, knowledge and skills development. SCL concepts should be kept as a long standing title in all college activities including induction, self-learning and development, training programs, debates/discussion, decision making, self-assessment, review and development, etc.

ii) **Provision and integration of resources**

This is to let students and staff make use and take advantage of modern resources and tools (like smart phones, tablets, computers, networks, digital media, e-learning, m- learning, online student response system, virtual classrooms, on-line resources, open educational resources, teaching aids, etc.) to make the shift towards SCL. Also, to allow students to be more autonomous in their learning, using variety of resources and technologies that enable them to search, acquire knowledge/skills, communicate, elaborate and invest in their own work. It is necessary to provide resources, wherever possible and applicable, for an e-learning environment and more experiential learning including web-based learning, computer-based learning, virtual classroom, digital collaboration, mobile learning, project-based learning, student immersion, etc. As CoTs follow an outcome and not content based curriculum (course material can be from any source provided that it achieves the outcomes), it is also necessary to focus on the provision and facilitation of open educational resources, OER, with high speed

internet and enough free access computer laboratories in order to allow students expanding their learning.

Provision and training on the integration and usage of resources that support SCL is also a long standing, slow and complex process which takes a long time and requires the support of faculty, college and ministry. Although, technology provides a powerful tool to enhance SCL, it can't drive the SCL reform on its own; lots of systematic effort is required to be spent for the development of capabilities of staff and students joining CoTs. Not surprisingly, some studies (Moeller and Reitzes, 2011) revealed that 43% of high school students feel unprepared to use technology as they look ahead for higher education or work life. The same applies to staff, e.g. the reference mentioned also found that only 8% of the teachers fully integrate technology in the classroom.

Training to staff on effective integration and usage of the mentioned resources and technologies, falls on the colleges' administration within the activities of part (a) of strategy 1(SCL environment enhancement), while to students, by both the college, dept./center administration and the lecturers as part of their activities in strategy 2. Details of training activities can be included in the SCL action/operational plan of each party.

5.2 Strategy 2: Shifting the learning role from teacher to students

This strategy can be accomplished through the gradual transformation of the ordinary teacher-centered learning methodology into a student centered one following some of the characteristics of learner - centered teaching stated by Weimer (2013). The important characteristics that drive the required shift of learning from teacher to students are as follows:

- i) Minimize doing the many tasks of learning by staff, instead, let students search, investigate, ask, solve, answer, construct, reflect, apply, organize, review, summarize, and make them responsible for their learning.

“Engage students in the hard and messy work of learning” (Weimer, 2013, pp.1)

- ii) Give students explicit instructions and assign them activities that help them develop their learning skills; how to think, solve problems, evaluate, analyze, integrate, generate, etc. These skills allow students to master material of the subject/discipline.

“By learning how to solve problems, think critically, apply information, and integrate knowledge, students can learn to think like experts in a discipline. In other words, they not only need to learn content, but they also need to know how they can learn more, which is critical in today’s environment where information is easily accessible and exponentially growing” (Weimer, 2013, pp.2)

- iii) Encourage systematic and consistent students’ interaction and collaboration; Students’ interaction with the lecturer and collaboration with each other represents an effective tool

to speed up and enhance student learning. Students learn from and with each other more easily and quickly, even lecturers can learn from students, Weimer (2013). To make students' collaboration beneficial, a conducive learning environment should be created. Students must build mutual respect, trust, confidence in one other, readiness to offer, ask support and feel free to express.

- iv) **Encourage student to make use of technology and open resources to enhance their learning.** The teacher is responsible for involving students in learning activities that incorporate the integration of modern technology and open resources, and to provide them with the required awareness sessions, support, and training (within classes as far as possible).

The following activities/initiatives may be followed by lecturers and students (inside/outside class) to realize the above strategy; encourage students' involvement and collaboration so as to become active, cooperative/interactive, innovative and life-long learners:

a) Activities to be done by students:

The following activities (but not limited to) can be initiated and maintained by each individual student:

- i) **Online Portfolio:** individual students can make use of latest technology to organize an online portfolio. Students should first be informed, by the teacher, on portfolio creation; what, why and how.
- ii) **In-advance preparation:** students come prepared in advance for the class in regards to outcome related tasks based on the delivery plan of the course.
- iii) **Develop myself:** as a student; in my free time, ask myself a question and try to find an answer; e.g. How can I manage my time better? What are the different learning styles? How can I understand better? How to collaborate with my colleagues? How can I develop a portfolio, etc.?
- iv) **Focused search:** allow student to search and decide on best OER source; textbook/ reference, discover new ideas, real life examples, etc. related to each course outcome.
- v) **My scientific diary:** a hard or online diary as a reminder for important definitions, laws, rules, ideas, blogs, etc.
- vi) **My dictionary:** a hard copy or online booklet to be maintained by the student as a reminder for any new vocabulary, quotes, phrases, etc.
- vii) **Peer Tutor:** an outstanding student who feels that s/he can play the role of a tutor should take the initiative to help other students (colleagues or lower level students) through regular tutorial classes organized by the academic unit.

b) Activities to be performed by lecturers/students:

Lecturers are required to reduce lecturing time to allow slots for learning development activities, participative, and cooperative activities by students that promote their learning. Following is a list of possible activities (but not limited to) that can be incorporated and embedded in the course delivery plan by teachers as far as possible and wherever applicable:

- i) **Awareness creation:** sessions for students on SCL; what, why, and how.
- ii) **Self-development:** sessions for students on developing confidence, personality and transferable skills.
- iii) **Modelling:** demonstrations for students on how to handle and solve problems.
- iv) **Simulations:** giving activities/assignments that inspire critical thinking.
- v) **Problem solving:** problem based learning on individual or group basis.
- vi) **Formative assessment, questioning:** asking students probing questions to measure their understanding.
- vii) **Practice Quizzes:** at the end of the class, the understanding of the students are assessed using practice quizzes. A question bank (computer based) is to be maintained with Easy, Moderate and Difficult level questions. Questions are randomly generated from the bank for each student and the student can get the feed back at the end. A student can repeat the practice quiz as many times as s/he wants.
- viii) **Classroom Discussion:** organize group discussion activities with clear tasks on a particular course outcome at specified time intervals.
- ix) **Online Discussion:** Online course forum debate and discussion (e.g. course forum using Moodle)
- x) **Online Student Response System, OSRS:** free online learning applications that can be signed in/downloaded on Smartphones, Tablets, Laptops, and PCs, like Socrative, <http://socrative.com/>, kahoot, <https://getkahoot.com/> Verso, <http://versoapp.com/>, Quiz Socket; <http://www.quizsocket.com/>, Mentimeter, <https://www.mentimeter.com/>, Polleverywhere, <https://www.polleverywhere.com/>, , , , and more;
<http://www.freetech4teachers.com/2014/03/seven-good-student-response-systems.html>
- xi) **Role play:** asking a student to play the role of a facilitator (teacher) or peer - tutor.
- xii) **Information gap activity:** this is a group/pair activity to allow students, during a specified period of time to share and exchange information on an outcome related task of the course (Jones, 2007).

- xiii) **Brainstorming and reflections:** to ask students in groups to brainstorm on a certain outcome related task, then each group leader to reflect on the approach for handling/solving the task/problem.
- xiv) **Read, think, write, pair, and share:** first, students start with reading a given outcome related task on individual basis, thinking, write reflections/answers, then students to pair and share views and findings (Baker College, 2009).
- xv) **Debriefing/minute paper;** individual or group of students to summarize the results/findings of an activity on an outcome related task and ask them to present it publicly.
- xvi) **Example and Counter Example based learning:** this is done by giving students, on individual or group basis, a worked example/s to allow them learn the steps required to solve a problem. It is also preferable to give them examples for completion together with the worked examples to promote their acquisition of problem-solving skills.
- xvii) **Answer directed questions based learning:** giving students, on individual or group basis, answers and asking them to frame questions.
- xviii) **Project/Case study:** individual or group based assignment to allow students to research, review, plan, do hands on, investigate, measure, analyze, conclude, and recommend.
- xix) **Rewarding:** class participation assessment, teachers may follow their own approach or that used by Nizwa College of Technology, (Abuid, 2014) or any other approach in the literature.
- xx) **Open book assessment:** an open book short/long examination can be conducted where students are permitted to make use of online/ offline resources, however direct questions should be avoided.
- xxi) **Peer and Self-assessment:** activity supervised by the teacher to allow students to self –assess their own work and allow a peer student to assess the work afterwards, the assessment to be formative and when well-developed can be made summative with a small portion of grades. More details can be found in; Exeter University 2016, <http://as.exeter.ac.uk/media/level1/academicserviceswebsite/tqa/learningandteachingsupport/5Dpeerassess1.pdf> and Northern Illinois University, http://www.niu.edu/facdev/_pdf/guide/assessment/peer_assessment.pdf.
- xxii) **Feedback on attainment of LOs:** teacher to provide regular and quick enough feedback to students on exam/quizzes, assignments, etc. to let them learn from mistakes and adjust their learning strategies.
- xxiii) **Probing Assignments:** give an outcome related assignment, on individual bases, to students from a particular reference/source (in the newspapers/library/ OER).
- xxiv) **Any other activity meeting SCL strategies**

In general, the selection of any of the above mentioned SCL activities depends on many factors; the readiness of staff and students, resources supporting the activity, course nature, class size, etc. It is better to be decided by the course coordinator and other lecturers teaching the same course.

5.3 Strategy 3: Make students responsible, accountable and influential

To ensure the accountability and responsibility of students for their learning, they should feel respected, free to talk, given the opportunity to take the lead, grading themselves, review and give feedback, etc. They should be given the chance to share some of the control on the learning process and become influential in the teaching-learning and assessment processes i.e. to provide them opportunities to decide, choose, and give constructive feedback in the CRD process. This strategy can be achieved through:

- i) Encouraging students to reflect on what they are learning and how they are learning it. They should be able to take responsibility for changing and developing their learning approaches to meet their needs.

“The goal is to make students aware of themselves as learners and to make learning skills something students want to develop.” (Weimer, 2013, pp. 2)

- ii) Motivating students to have some control over the learning processes, like what content to be included to achieve the outcomes of the course, and what textbook/reference is most fit, what assessment criteria to be followed to reflect outcomes attainment, etc.

“Learner-centered teachers search out ethically responsible ways to share power with students. They might give students some choice about which assignments they complete. They might make classroom policies something students can discuss. They might let students set assignment deadlines within a given time window. They might ask students to help create assessment criteria.” (Weimer, 2013, pp. 3)

- iii) Students should be allowed to become influential in the teaching-learning and assessment processes. Through surveys, interviews, focus groups, debate and discussion forums, etc. students can participate and influence constructively in the review and development of the curriculum with all its processes related to improving their learning and attributes.

5.4 Strategy 4: Nurturing confidence and transferable skills within students

A teacher is an educator to students before being a lecturer. S/he should be a role model and example of strong personality, confidence, commitment, keenness, honesty, etc. It is the responsibility of teachers, at first, together with the support of the college administration to provide

awareness, guidance and training to nurture and inspire transferable skills among students that help them improve their learning and attributes.

On a college and dept./center level there should be a Student Society/Club or a Student Success Club that help to develop and strengthen soft and life skills in students through extra-curricular activities especially designed to fill this purpose.

On the other hand, teachers should avoid certain practices so as to become a role model influencing positively their students, (Oregon State University, 2009);

<http://blogs.oregonstate.edu/muatosu/files/2009/07/Final-Report-Nurturing-and-Inspiring-Students4.pdf>)

i) Teachers should encourage students to acquire:

- Define identity and goal; who am I? what do I want?
- Understand what does personality mean,
- Define vision for the future,
- Develop personal agenda/plan for outcomes,
- Be value driven,
- Be ready to take challenge,
- Be self-motivated,
- Develop assertiveness,
- Develop resilience and leadership skills,
- Be conscious of the self-coping behavior to avoid bad ones,
- Focus on strengths rather than weaknesses,
- Weed out shyness; I don't feel shy to ask or make a mistake but feel very shy when standing still not knowing what, why and how.
- Feel free to talk and play roles,
- Be a good listener,
- Exchange, share and value other views,
- Build strong relationships with colleagues,
- Be punctual and disciplined.
- Share the knowledge and views with colleagues.
-

ii) Teachers should never do or tell students:

There are many common mistakes that need to be avoided by teachers for proper delivery of their message in nurturing transferable skills, promoting students learning and improving student success and retention. Following are some important undesirable faults that should not be done inside or outside the classroom. For more details and other mistakes, one may refer to the: *On Course, Helping Colleges Improve Student Success and Retention (2016)*, retrieved in Aug 2016 from; <http://oncourseworkshop.com/table-contents/67-worst-teaching-mistakes/>

Teachers should avoid:

- Motivating students through fear; if you don't answer you will fail,

- Not knowing every student's name by the 2nd week of the class,
- Dreaming big without telling how,
- Lacking in knowledge and coming unprepared,
- Making promises students can't keep or not attending to them,
- Talking to the board,
- Concentrating only on few students rather than whole class,
- Underestimating any student,
- Not giving attention to let students feel respected,
- Nullifying of students' opinions and viewpoints,
- Becoming angry and taking it personally,
- Teaching content without explaining the learning skills helping students to understand,
- Not showing keenness,
- Showing no interest in the academic preparedness of each student and giving no value to academic support to students outside classroom,
- Not giving regular and quick feedback; making new quiz/exam or asking new assignment without giving feedback on the previous one,
- Not allowing students to reflect on and self-assess their work,
- Assume students know terminology, vocabulary etc.,
- Say some words repeatedly, e.g. say "okay" unlimited times in class,
- Changing mind about a grade other than that really earned by the student,
- Sitting/standing behind a desk and speaking from a stationary position,
- Being too friendly and generous giving easy "A"s to students without ensuring that they really learnt the material.

6. Roles of College Parties to Achieve SCL Strategies.

To implement SCL in a conventional teaching environment, the following (but not limited to) have to be considered as far as possible, by the different parties in various aspects of the teaching, learning and assessment process.

6.1 Role of the College

There should be (to be ensured by the ETC with the help of different units and CC of each college):

1. A college wide clear plan on the provision, use and integration of SCL resources for the creation of SCL environment across the college.
2. Continuous update and maintenance of available resources; internet connection in campus (wire/less), WIFI access for mobiles, internet enabled PCs with speakers and projector, smart boards, learning resources, free PC access labs.
3. A college wide induction, awareness and training programs should be ensured regularly to prepare staff and students to take up the SCL challenge.

4. A strategy to encourage exceptional students to become peer tutors and allow them to be cultivated as teachers of the future (not necessarily in the same college).
5. Consideration of issues that limit students' freedom and accountability or detain the implementation of SCL in the review process of existing procedures and policies, like student discipline procedure/policy,, etc.
6. A college wide monitoring, assessment of progress, and improvement of SCL activities

6.2 Role of Academic Units (ELC and Academic Depts.)

Within the unit's operational plan, department/center's management authority should ensure:

1. Doing SCL capability and need analysis survey for staff and students (see Appendix 1).
2. Identification (by each academic unit) of the most familiar and experienced staff for providing induction and training, and for piloting SCL.
3. Induction, awareness and training programs for staff and students (within the unit OP).
4. Training on the use and integration of SCL resources to students and staff.
5. Running a pilot SCL- based course delivery, annually, with the help of the most familiar and experienced staff.
6. Motivation to all teaching staff to gradually get self- developed to incorporate possible SCL activities, use and integrate possible open resources and technology enhancing SCL.
7. Publication of the pilot SCL delivery plans on the common Share Point portal to exchange experience with other colleges.
8. Supporting unit staff, for possible courses, in the creation of e-learning page (for students-teacher interaction) and electronic course pages (for teachers' interaction across the college). A Course page is a single point Hub of all components developed for a course. It is a web site which has links to lecture slides, class activities, video links, and assignments, projects related to course, practice questions, take-home assignments and any other components for a course.
9. The organization of a time table to peer tutors (outstanding students) to support the learning of their colleagues or lower level students.
10. Monitoring and assessing the progress of SCL activities
11. Regular reporting of SCL findings and challenges for discussion in the dept./center and college council.
12. Preparing SCL improvement plan for implementation next year.

6.3 Role of the Student

Students, with the support of their academic units, student affairs activity department and student council, should:

1. Take the initiative to review, investigate, discuss and understand the keys and benefits of SCL.
2. Incorporate SCL activities as far as possible (listed above) to develop their learning styles and become autonomous learners.
3. Outstanding students should organize workshops to their classmates on SCL; what, why, how?

4. Share views and experiences with colleagues and staff on SCL and lifelong learning in online discussion forums.

6.4 Role of All Teaching Staff

All teaching staff should do the following:

1. Self-develop; skills and knowledge on SCL objectives, benefits, requirements and implementation; what, why, how?
2. Check the availability of the necessary resources/technology needed for activities supporting SCL before incorporating the activities in her/his assigned course/s, like e-learning, m-learning, and possible resources from OER, MOOCs, ALISON, Coursera, edX, for the course/s, etc.
3. Provide 10-minute induction, awareness and training sessions to students on SCL; what, why, how? (3-4 times a semester)
4. Integrate SCL resources within learning activities of the delivery plan, as far as possible.
5. Incorporate some SCL activities (listed above) within the delivery plan, as far as possible, e.g. group discussion, think, write, pair, share, student self and peer- assessment, role play, debriefing, formative assessment (checking understanding),
6. Monitor, and assess the progress of SCL approach annually (e.g. for three continuous semesters).
7. Report findings for discussion in the unit council.
8. Prepare improvement plan for next cycle to overcome challenges and incorporate more SCL activities.

Time for implementation is kept open with no deadline, however it is necessary that each and every staff has to take the challenge and start with few SCL activities, monitor, measure and self-assess and go on repeating to improve; once this stage is achieved more SCL activities can be incorporated.

6.5 Role of SCL Experienced Teaching Staff

One pilot course needs to be identified by each department in each college for the comprehensive implementation of SCL (annually). The course is to be handled by the most SCL familiar and experienced teaching staff in the department. The volunteering teacher should ensure the following:

1. Prepare SCL- based Course Delivery/Session Plan including the most possible SCL activities. One may share and make use of the plans of teachers from other academic units and CoTs uploaded on the Share Point Portal.
2. Involve students in most of the possible SCL activities listed in SCL strategies 2, 3 and 4 of CoTs (above).
3. Provide continuous awareness and training sessions to students on SCL; what, why, how?
4. Ensure the availability of the necessary SCL enhancing technology for the course; laptops, computers, e-learning, m-learning, etc.
5. Use library textbooks, references, OER, MOOCs, ALISON; <https://alison.com/>, Coursera, edX, as the only sources for the course content.

6. Ask each student to identify the most appropriate open- resource online content for each particular outcome/discipline of the course as a regular assignment at the beginning of new course outcome/discipline.
7. Ask students to come prepared in advance.
8. Measure the SCL implementation success near the end of each semester. The sample SCL assessment tools can be used for this purpose.
9. Map GA (Graduate Attributes) against SCL activities.
10. Report findings for discussion in the unit council.
11. Conduct a seminar/workshop for all staff of the department/center (or college wide) to discuss and inspire attendees about the main SCL findings and challenges.
12. Prepare SCL adjustment plan for the next cycle based on the findings and the outcomes of the seminar/workshop. This is to be repeated for at least once a year.

7. SCL Based Assessment

The conventional teaching methods implement assessment schemes that have less emphasis on the assessment of student participation. The assessment of SCL based courses needs to be designed and implemented with more formative-summative assessment components in order to gauge students' understanding during the learning process, and a summative assessment to measure their attainment of outcomes at specific intervals during the semester. Students should be given opportunity to give feedback and work out assessment criteria, with the support of the teacher, for certain SCL activities to justify their answers. Self and peer-assessment activities by students need also to be incorporated, based on predefined or the student developed criteria, to allow students gauge their understanding by themselves and with each other.

7.1 Continuous Formative-Summative Assessment

Assessment in SCL based courses and the teaching/learning process should be intertwined rather than separated as in the ordinary teacher-centered approach. It ought to emphasize on generating better questions/answers and learning from errors rather than focusing only on the right answers as in the usual approach (*paradiam.ppt*, University of Delaware, www1.udel.edu/pbl/HUST2005). Thus students should be clearly instructed about the SCL assessment approach to feel free and safe in making mistakes so that they can learn from them to promote understanding and adjust learning strategies.

SCL Assessment involves a diagnostic tests or the so called formative assessment (https://en.wikipedia.org/wiki/Formative_assessment) performed continuously during the learning process to verify the minimum level of understanding of each student, and give qualitative feedback to both teacher and student to promote learning. Usually formative assessment is done without grading and can be coupled with a summative assessment at the end of the activity (formative –summative approach) if the teacher gets acquainted with SCL and finds it achieving the betterment of students' understanding and learning outcomes. Baker College suggests some SCL activities in coupling with assessment as shown in Appendix 2.

There are many techniques in the literature for conducting the continuous formative-summative assessment. Details on class assessment approaches can also be found from *Stassen, Doherty and Poe (2001)*, *University of Massachusetts*, however the most useful is the Classroom Assessment Techniques (CATS) by Angelo and Cross (1993). A teacher can select the most appropriate methods from the given fifty (50) probing techniques which are quoted by Baker College, (2009):

“I. Assessing Prior Knowledge, Recall, and Understanding

The CATS in this group are recommended to assess **declarative** learning, the content of a particular subject.

1. Background Knowledge Probe: Short, simple questionnaires prepared by instructors for use at the beginning of a course or at the start of new units or topics; can serve as a pretest; typically elicits more detailed information than CAT2.

2. Focused Listing: Focuses students’ attention on a single important term, name, or concept from a lesson or class session and directs students to list ideas related to the “focus.”

3.....

III. Assessing Skill in Synthesis and Creative Thinking

The CATS in this group focus on **synthesis**—each stimulate the student to create, and allow the faculty to assess, original intellectual products that result from a synthesis of course content and the students’ intelligence, judgment, knowledge, and skills.

13. One-Sentence Summary: Students answer the questions “Who does what to whom, when, where, how, and why?” (WDWWWWHW) about a given topic and then creates a single informative, grammatical, and long summary sentence.

14. Word Journal: involves a two-part response; first, the student summarizes a short text in a single word and second, the student writes 1-2 paragraphs explaining the word choice.

15.....

X. Assessing Learner Reactions to Class Activities, Assignments, and Materials

The CATS in this group are designed to give teachers information that will help them **improve their course materials and assignments**.

46. RSQC2 (Recall, Summarize, Question, Connect and Comment): Students write brief statements that recall, summarize, question, connect and comment on meaningful points from previous class.

47. Group-Work Evaluation: Students complete a brief survey about how their group is functioning and make suggestions for improving the group process.

48. Reading Rating Sheets: Students complete a form that rates the effectiveness of the assigned readings.

49. Assignment Assessments: Students respond to two or three open-ended questions about the value of an assignment to their learning.

50. Exam Evaluations: Students provide feedback about an exam’s learning value and/or format” (Baker College 2009, pp 36-39).

7.2 SCL Based Assessment Plan (sample)

Not all SCL activities need to be graded. However, to motivate students, and when the process becomes mature enough and well developed, it is recommended to grade some important parts of the individual/group active learning work, otherwise formative assessment (without grades) during the activity should be maintained.

The teacher is given the authority to design the SCL based assessment plan within the general assessment scheme agreed in the Bylaws of CoTs. A sample plan is shown in Table (1) below:

Table 1. SCL Based Assessment Plan - General

	Continuous Formative-Summative Assessments	Marks (30)	Summative Assessments	Marks (70)
Formative assessment during the learning process	Probing questions		Mid Term Exam	15-20
	Minute paper		Lab Exam	15 - 0
	End activity/class quiz		Final Exam	40-50
	Developing assessment criteria			
	Self and peer – assessment based on developed criteria			
Summative assessment by the end of activity/class	Quizzes	5		
	Group/individual Assignments	5		
	Group Project/ Case Studies	5-10		
	Class Activity 1	2-5		
	Class Activity 2	2-5		
	Class Activity 3	2-5		

As CoTs get more familiarized with SCL approach, the specialization committees of CoTs may decide to expand the general assessment scheme to fit the nature of different courses of specializations in different departments/centers. A mix of Formative-Summative and Summative Assessment to fall in a ratio of 30:70/ 40:60 / 50:50 / 60:40 may be decided, however the rubrics for Formative-Summative assessment should be kept within the teachers' perceptions to achieve the SCL relevant strategies.

8. Tools and Indicators for the Assessment of SCL Implementation

Following is a list of tools and indicators (but not limited to) that help the assessment and measuring the effectiveness of SCL implementation across the college, unit wise and by each individual staff.

- Using fact finding questionnaires to Staff and Students to measure the following (see Appendices 3 and 4);
 - Level of awareness on SCL (% of staff and students who know the general concept)
 - SCL depth and familiarity (% of staff and students who deeply know SCL)

- Level of use and integration of open resources and technology to enhance SCL (% of staff and students using OER, MOOCs, ALISON, Coursera, edX, e-learning, m-learning, and those who still use handouts)
 - Percentage of students who like SCL activities; like group discussion, online discussion, think, write, pair and share, self and peer-assessment, role play, debriefing, reflections, etc.
 - Overall level of satisfaction with SCL approach, strategies and activities
2. Availability and utilization of SCL enhancing resources (technology and open resources) in number and quality
 3. Number and quality of conducted inductions, awareness and training programs provided to staff and students across the college and in each academic unit. Similarly, those done by each individual staff for students.
 4. Satisfaction rates on the conducted SCL awareness and training programs done across the college and in each academic unit and by each staff.
 5. Main SCL challenges and threats.
 6. Main decisions and actions taken to overcome challenges; college wide, unit wise and by individual teachers.
 7. Level of resistance to SCL from students and staff.
 8. The number of SCL activities conducted in a semester in a department/center including all the courses or measured per courses.
 9. Number of students participating actively in self-learning in each course. This number can be compared every year with previous years and trend chart can be drawn

9. Probable SCL Challenges

The following are most common challenges associated with the implementation of SCL and the measures to be taken to overcome or minimize their effect:

- 9.1 Student fear of making/committing mistakes affecting their grades:** Students need to feel free and safe to make mistakes without fear of the impact on their course grade. This is to be declared clearly to students by the teacher as a rule (Froyd and Simpson, 2007)
- 9.2 Course Content Coverage:** staff usually raise the question of the ability to cover the course content within the semester period while implementing SCL approach. In the classical method, a teacher can summarize tens of pages in one lecture notes/ power point presentation and give it to students in one class time, but whether students learnt or not is doubtful. SCL provides learning opportunity to students with better conceptual understanding, critical thinking, independence and more confidence. High coverage of content can be achieved by focusing on the “big ideas” of an outcome based and not content based learning (Froyd and Simpson, 2007). Also, to encourage students to increase their learning outside the face-to face sessions and with an in-advance preparation of outcome related material.

“A huge volume of material can be "covered" in a short period of time. If you put all of your lecture notes in PowerPoint or on transparencies and flash through them in class, you can get through several hundred pages of text in a month. The question is, what is your objective? If it is simply to present all of the prescribed course material, regardless of how much or little of it the students actually absorb, then you should not use active learning exercises - they do indeed slow things down. However, if the objective relates to what the students learn as opposed to what you present, then the goal should not be to cover the syllabus but to uncover the most important parts of it”, (Felder and Brent 1999).

9.3 Handling SCL in large classes: SCL in large classes can be managed using several strategies like informal small groups (Froyd and Simpson, 2007) think pair share, peer instructions, quick think, minute papers, etc. It requires more in advance preparation by students, focused question/task within a prescribed time interval to drive groups discussion and more time control on tasks by teacher with results/conclusion from selected students after the end of each question/task.

“A key to making active learning work in large classes is to stop the activity after the prescribed time interval and call on individual students or teams to state their results. (When we do this, we tend to overload on the back of the classroom, where many students go to avoid the instructor's attention. In our classes the students quickly learn that they can run but they can't hide!) If you only call for volunteers to provide responses after a group exercise, many students will not participate in the activity, knowing that sooner or later another student or the instructor will supply the answer. If they know that any of them could be called on, the same fear of embarrassment that keeps them from volunteering responses in the whole class will prompt most of them to work with the small group so that they will be ready with something if they are picked”, (Felder and Brent 1999).

For further details on dealing with large classes with active learning one may also see Lloyd - Strovas, (2015).

9.4 Student resistance: usually resistance to any change comes from the ignorance about the issue of concern. Emenyeonu (2012) investigated many challenges related to SCL implementation in Oman. He found that there is a big lack of perception of the concept of SCL within students:

“In a discussion with the students as to their roles in the class, most of them said “we have only to sit, listen and take information from the teacher”. There have been cases according to one teacher “where passive students complained that active students should stop wasting the time the teacher should use in feeding the whole class information”. Any information that is not from the teacher, for the passive students, is not good enough to be accepted. Thus passive students believe that it may be impossible to learn from their fellow students. One student bluntly said “what can I learn from my fellow student? He is just like me, but the teacher is trained and paid to teach us so he has better information” (Emenyeonu, 2012, pp 250)

The resistance to change within students can be minimized by explaining why, how and what benefits students will gain from SCL. There will be a struggle for them at the beginning to

accept the change of being responsible but staff should not give up; they should be ready to withstand, keep on trying, listening and responding to students' inquiries,

"Some methods and actions may work better than others for overcoming student resistance to learner-centered teaching. The key is to not give up. Continue trying new things until you find something that works because students deserve the clear benefits of this educational approach despite their initial resistance", (Weimer, 2013, pp.6)

9.5 Poor student reading culture

Poor reading culture is one of the major obstacles for implementing SCL, source of students' resistance to SCL and a reason for bad academic performance. Reading offers good exposure of knowledge that allows students to build ideas/views and become active and interactive, however even with the presence of well-equipped libraries and unlimited OERs, it will be of no use unless students by themselves and through their teachers are encouraged to try. Emenyeonu O. C. (2012) highlighted this challenge within Omani students who mostly read only to pass examinations;

"one of the teachers was quick to point out that "a more serious problem is the lack of reading culture among students in this country. Even if the libraries are well equipped, the students hardly have time to engage in reading. Omani culture is rich in oral tradition, not reading" (Emenyeonu O. C. 2012, pp 250)

Teachers may encourage students to enhance their reading culture through assignments from a particular resource such as analyzing/summarizing articles in newspapers/English reference book for GFP students, and a task from a particular outcome related OER for post foundation students.

9.6 How to start SCL: As mentioned before, implementation should start gradually and in stages. Even for teachers who are most familiar with SCL, the same challenge applies if the approach is new to students. Incremental implementation of SCL will help minimizing their resistance and get them involved slowly:

*"First, using student-centered learning approaches to teaching **never means that teachers do not lecture**. Next, slow, thoughtful, reflective transitions to student-centered learning approaches are likely to lead to the most sustainable changes in teaching. Faculty members might begin with informal cooperative learning approaches: **think-pair-share** (Lynam, 1981), **Quick-thinks** (Johnston & Cooper, 1997), and **minute papers** (Angelo & Cross, 1993; Stead, 2005)." (Froyd and Simpson, 2007, pp. 5)*

9.7 Grading of group work: To motivate students, it is preferable to grade important SCL activities; this may include group activities, assignments, problem solving, self and peer assessment activity, etc. Grading should be based on a clear assessment criterion developed with input from students. Usually there is no difficulty in assessing individual students, however group work grading involves challenges related to active and inactive group members. This can be reduced by redesigning the assessment criteria to include components on individual group member contributions:

"In group projects, students are often confronted by the "free-rider" problem of a group member who does not contribute but shares in the group rewards. Advanced planning can reduce this concern by employing a grading system that provides individual as well as group accountability", (Baker College, 2009, pp.9).

9.8 Introvert and extrovert students: Students who quickly volunteer and mostly answer in short time are called extroverts while those who prefer working alone, feel shy and need time to think before they answer are introverts. Extroverts appear excited in discussion and ready to participate while introverts seem to be unresponsive and unsociable but actually they are busy thinking and need more time to start answering. The teacher should be aware of both categories so as to involve and deal properly with each type of students.

"You will have some students in your classroom who will need to reflect internally. Often categorized as "introverts," these learners need to process their information through thinking, journaling, and by themselves. In other words, introverts "think to speak." Contrast this with the extroverts, who struggle to process information unless they are doing it externally, and with other people. They often think as they talk (and sometimes talk before they think...), whereas introverts will typically think about an answer for a while before they speak (if they share at all). In other words, they "speak to think." You will be able to quickly observe who is who in your class, based on who is typically answering questions versus who does not typically initiate an answer. And you yourself probably fit into one of the two categories", (Baker College, 2009, pp. 5).

9.9 Students who are not intellectually ready

"Sometimes a student truly is not intellectually ready to become the independent learner that is necessary for him or her to get the most out of learner-centered teaching approaches. If they don't seem to be resistant to more work or responsibility and they do not seem to be afraid, then it may be that they are not intellectually ready to tackle a particular activity. If this is the case, you may need to either revise the activity, or create a bridging experience to prepare them for that activity." (Weimer, 2013, pp. 5)

9.10 The level of students to start with: Some staff think that, it is better to start the SCL approach with the most mature students of higher levels, however implementation of the approach in early levels can also benefit students at early ages and help them to become mature autonomous lifelong learners at higher levels;

"A second common reason for colleague resistance is the belief that only very advanced and mature students would benefit from this type of teaching practice. Your colleagues may not believe that beginner students can learn enough from these methods and need to be schooled in the basics first. However, this is a widely accepted misconception. Learner-centered approaches can benefit any student despite their educational starting point." (Weimer, 2013, pp. 6)

9.11 Language Constraints: Students who face difficulty communicating in group/open discussion activities need to be given special attention. They should be

encouraged to read and listen more to English conversation, and develop “own dictionary” for new vocabulary and quotes and examples.

REFERENCES

1. Abuid, B.A. (2014). A student participation assessment scheme for effective teaching and learning. *Learning and Teaching in Higher Education: Gulf Perspectives*, Vol. 11 No. 1, <http://lthe.zu.ac.ae/index.php/lthehome/article/view/109/87>.
2. Angelo and Cross (1993), *Classroom Assessment Techniques: A Handbook for College Teachers*. San Francisco: Jossey-Bass.
3. Baker College (2009). Activities for learner-centered teaching. Effective Teaching and Learning Department, <https://www.scribd.com/document/246322201/Activities-for-Learner-Centered-Teaching>
4. Din, F. S. and F. W. Wheatley (2007). A Literature Review of the Student-Centered Teaching Approach: National Implications, *National Forum of Teacher Education Journal* Vol. 17 No. 3, 2007, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.458.4577&rep=rep1&type=pdf>
5. Emenyeonu O. C. (2012), Student-Centered Learning in Oman: Challenges and Pitfalls, *International Journal of Learning & Development*, ISSN 2164-4063 2012, Vol. 2, No. 5. <http://www.macrothink.org/journal/index.php/ijld/article/view/2549> (retrieved Sep. 2016).
6. Froyd, J. and N. Simpson (2007) Student-Centered Learning Addressing Faculty Questions. Retrieved April 18, 2016 from http://ccliconference.org/files/2010/03/Froyd_Stu-CenteredLearning.pdf
7. Jones L. (2007), *The student-centered classroom*, Cambridge University Press, <http://www.cambridge.org/elt/teacher-support/pdf/Jones-Student-Centered.pdf>
8. Lloyd - Strovas, J. (2015) *Tips for Teaching Large Classes*, Teaching, Learning, and Professional Development Center, Texas Tech University: August, 2015, http://www.depts.ttu.edu/tlpdc/Resources/Teaching_resources/TLPDC_teaching_resources/TipsForTeachingLargeClasses.pdf
9. Martha L. A. Stassen, K. Doherty and M. Poe (2001) *Course-Based Review and Assessment, Methods for Understanding Student Learning*, office of Academic Planning & Assessment, University of Massachusetts Amherst http://www.umass.edu/oapa/oapa/publications/online_handbooks/course_based.pdf
10. Moeller B. & T. Reitzes (2011) Education Development Center, Inc. (EDC). *Integrating Technology with Student-Centered Learning*. Quincy, MA: Nellie Mae Education Foundation, <https://www.nmefoundation.org/getmedia/befa9751-d8ad-47e9-949d-bd649f7c0044/Integrating-Technology-with-Student-Centered-Learning> (accessed in Aug. 2016)

11. Nurturing and Inspiring the Extraordinary in Students, Center for Leadership Development, Oregon State University, 2009, <http://blogs.oregonstate.edu/muatosu/files/2009/07/Final-Report-Nurturing-and-Inspiring-Students4.pdf>
12. On Course, Helping Colleges Improve Student Success and Retention. <http://oncourseworkshop.com/table-contents/67-worst-teaching-mistakes/>
13. O'Neill G. and T. McMahon, (2005). Student –Centered Learning: What Does it Mean for Students and Lecturers? University College Dublin, Dublin: AISHE, 2005. <http://www.aishe.org/readings/2005-1/>, accessed in Aug. 2016).
14. Richard M. Felder, R. M. and R. Brent (1999), FAQs. II. (a) Active Learning vs. Covering the Syllabus; (b) Dealing with Large Classes. North Carolina State University, Chem. Engr. Education, 33(4), 276–277, <http://www4.ncsu.edu/unity/lockers/users/f/felder/public/Columns/FAQs-2.html>
15. Weimer, M. (2002). Learner-centered teaching. San Francisco: Jossey-Bass. Retrieved April 18, 2016 from <http://www.usciences.edu/teaching/Learner-Centered/>
16. Weimer M., (2013). A book summary on Learner-centered teaching: Five key changes to practice, <http://cte.tamu.edu/getattachment/Faculty-Teaching-Resource/Program-ReDesign/Orientation-and-Team-Formation/Book-Summary-Learner-Centered-Teaching-by-Maryellen-Weimer.pdf.aspx>, retrieved Aug. 2016.
17. Wright G.B. (2011). Student-Centered Learning in Higher Education. International Journal of Teaching and Learning in Higher Education, 2011, Volume 23, Number 3, 92-97. <http://files.eric.ed.gov/fulltext/EJ938583.pdf>, retrieved Sept. 2016.

Appendix 1. Teaching Staff Capability and Need Analysis

MINISTRY OF MANPOWER STUDENT CENTERED LEARNING IN CoTs

Teaching Staff SCL Capability and Need Analysis Survey

Academic year:	Semester:
Department/ Specialization:	Level:
Name:	Designation:

Please read each of the statements below and tick (✓) the appropriate box to the right that best fits your judgement using the following scale:

①	②	③	④	⑤	NA
No/ Poor	Moderat e	Good	V. Good	Yes/ Excellent	Not Applicable
No need	Moderat e need	High need	v. high need	Strong need	

	Assessment Elements	①	②	③	④	⑤	NA
A.	Capability in SCL (tick the degree of your capability; 1 for poor capability while 5 for excellent capability)						
1.	I am well experienced in SCL and ready to take the initiative for its piloting in my course						
2.	It is easy to me to design a delivery and lesson plans including SCL activities.						
3.	I am ready to give awareness sessions on SCL and training to staff and students.						
4.	I find interest in reading more about SCL and can implement it easily.						
5.	I am able to implement SCL in large class sizes						
6.	I have enough knowledge and skills to involve students in SCL activities using Moodle.						
7.	I have enough knowledge and skills to involve students in SCL activities using smartphones						
8.	I am only capable of incorporating few SCL activities						
9.	I have some ideas to encourage students lifelong learners accessing and using OERs/MOOCs, etc.						
10.	I am very interested in Students Response Systems and ready to implement one application in my class						
11.	I know how to deal with introvert and extrovert students and make both active.						
12.	I am familiar in group work grading and the assessment of other SCL activities and can provide an assessment plan as a model.						
B.	Needs for information and skills in SCL (tick the degree of your needs; 1 no need while 5 very strong need)						

1.	SCL concept and strategies						
2.	SCL activities and implementation						
3.	SCL delivery and lesson planning						
4.	SCL activities Assessment						
5.	e-learning using Moodle						
6.	m-learning with smartphones						
7.	Student Response Systems; kahoot, Verso, Quiz Socket, Socrative, etc.						
8.	Web- based learning; virtual classes						
9.	OERs, MOOCs, etc.						
10.	Dealing with SCL challenges; material coverage, large class size, etc.						
11.	Student psychology and nurturing transferable skills within students						
12.	How to build confidence and make a student accountable and decision maker.						
13.	Assessment of effectiveness of SCL activities						

Appendix 2. Formative Assessments - CATS

Below are some of Student Centered Teaching activities which are useful to conduct in classes. For more activities please go to the website;

[https://my.baker.edu/ICS/Academic/Effective Teaching Learning/Quality Teaching and Learning/](https://my.baker.edu/ICS/Academic/Effective_Teaching_Learning/Quality_Teaching_and_Learning/) and [“Activities for Learner-Centered Teaching”](#)

Approach	Method	Activity Based	Assessment Based
Think-Pair-Share	The instructor gives the question and students think about the answer by discussing it with another 3 to 4 students within one or two minutes and has to reach consensus on the right answer. The instructor asks one of them to explain their answer to the class.	✓	
One Minute Paper	An open-ended question is given to a student and he/she is given one minute to write the answers and later to be collected by the instructor. The answer is either summarized in class or pose question for those with unclear concepts.	✓	✓
Case Studies	The students analyze the given case, draw interpretation, provide suggestions and solutions based on the scenario presented.	✓	
Tutorial Worksheets	A student creates a poster or any visual representation that identifies and shows the interconnection of various ideas related to a specific topic or problem. A worksheet is used to lead them in solving a logical problem or overcome a conceptual difficulty.	✓	✓
Problem-based Learning	A student work with other students in group to solve complex, multifaceted and realistic problems, researching and learning necessary background material as needed.	✓	
Computer and Simulation Games	Students use interactive computer simulations or online games that are under the user or student's control to visualize phenomena, test predictions, receives prompt, targets feedback to refine their intuitions and conduct and analyze virtual experiments.	✓	
Group Tests	A test is administered twice to the same students. The first time students answer the question individually and submit their answer sheets. Then they will work in groups and re-take the same test. The average scores is taken from the two tests.	✓	✓
Writing Peer review	Students evaluate each other's writing using a rubric or criteria provided by the instructor.	✓	✓
Open Book Assessment	Students can refer to any material online or offline and should answer questions. Direct question may be avoided in such cases.	✓	✓
Just-in-time teaching	Students submit answers to questions about pre-class reading online, due a few hours before class. Answers are graded based on completion and effort not correctness.	✓	
Student teacher	A student is treated as teacher in a class. Before taking the class student is selected by group and he/she has to prepare his/her own teaching notes. Teaching notes are prepared in groups. Under the leadership of each of the class leaders, all the group members collaborated with each other. Twenty minutes class is given to selected student teacher. The class was controlled by the student teacher. As a result, there is active participation of the students.	✓	

Just a Minute	This popular game activity helps students become more confident at speaking or doing problem solving or writing rules on the board within a minute. The basic task is that students need to try and talk about a topic for a minute or do other task as what was asked.	✓	
Student led seminar	Students work in small groups. They share their opinion and ideas. They report back with their solution. A team leader of the group is asked to present the topic. Non-presenters are encouraged through questioning, debates and quiz.		
Group Activity	A problem is given to each group and every group has to solve the problem, evaluate the problem to obtain solution to multiple problems and generate the output by sharing the views of their group members. As an example, a given chapter is given and they are asked to frame some questions from that chapter and get answers from the other group and vice versa.	✓	
Round Table Activity	Students were divided into groups (each group: 4 students) to analyze and find solution for practical oriented problems. Each group chooses a random number and according to the number got, a topic is given. In the allotted time, they have to discuss their answers to the problem/s given in that topic. One or two students from each group solved the problem on the white board and taught all other students.	✓	

Appendix 3 SCL Fact Finding and Student Satisfaction Survey

MINISTRY OF MANPOWER STUDENT CENTERED LEARNING IN CoTs

Student Feedback on SCL

Academic year :	Semester:
Department/ Specialization:	Level:

Please read each of the statements below and tick (✓) the appropriate box to the right that best fits your judgement using the following scale:

①	②	③	④	⑤	NA
No/ Strongly Disagree	Disagree	Not sure	Agree/ V. Good	Yes/ Strongly Agree	Not Applicable
Very poor	Poor	Good		Excellent	

	Assessment Elements	①	②	③	④	⑤	NA
A.	Awareness on SCL						
1.	I know much about SCL, and I am aware of its activities like group discussion; read, write, share & pair; peer and self-assessment; role play, etc.						
2.	I know all about the benefits of SCL						
3.	My role in SCL is clear to me, and I know what I should do to improve my learning						
4.	The college/dept./center management provides me with information about SCL.						
5.	Lecturers used to provide me with information on SCL activities and tools/technologies used to support it.						
6.	I know what do OER, and MOOCs mean.						
7.	I got enough training on using Moodle						
8.	I got enough training on some Experiential Learning and Student Response Systems.						
B.	Use and integration of open resources and technology to support SCL						
9.	I do not prefer using the handout and always go to read references in the library and internet.						
10.	I prefer using OER/MOOCs to learn more about the subjects I study						
11.	I am using Moodle to join learning activities and online discussion with the teacher and classmates.						
12.	I am using my smartphone to join learning activities and online discussion with the teacher and classmates.						
13.	SCL supporting resources are available and easy to use.						
C.	Satisfaction with SCL activities						
14.	My teacher is knowledgeable and have good skills in SCL.						

15.	The teacher has planned some SCL activities to encourage my participation and collaboration with other students						
16.	My teacher incorporates resources and technologies like; OER, Moodle, m-learning, Student Response Systems, etc. in the delivery of the course outcomes.						
17.	All the SCL activities designed are co-related with the defined Course Learning Outcomes.						
18.	The SCL activities planned by my teacher have helped me improve my confidence and allowed me to perform well in assessments.						
19.	The teacher encourages communication and group discussion (in class and online) of students for every outcome taught.						
20.	The teacher encourages students' peer and self-assessment.						
21.	Students are very cooperative and helpful to improve my learning						
22.	The teacher is approachable and always gives constructive feedback on any doubts or issues raised.						
23.	The SCL approach has made me more focused and responsible.						
24.	The SCL approach has enabled me to think critically, to acquire the reading habit and a continuous thirst for knowledge.						
25.	The SCL approach has enabled me to study and learn at anytime from anywhere.						
26.	I am given the opportunity to select the material to study and give feedback on assessment criteria.						
27.	I am given the opportunity to give feedback on the curriculum.						
28.	I like SCL and found that it is more beneficial. It improved my understanding and built my ability to become independent learner. .						
D.	Challenges with SCL						
29.	I fear participating in public in class activities.						
30.	SCL places lots of pressure on me to work and read more material						
31.	The class with SCL activities is messy and not organized.						
32.	I need more time to think before giving an answer to lecturer's task/question						
33.	My basics and background do not help me to think alone or share with others						
34.	My language is poor to allow me participating in common SCL activities						
35.	There is no enough information and training on resources supporting SCL activities						

Are there any comments or suggestions about SCL and lectures who deliver it?

Thank you for completing this questionnaire.

Appendix 4. SCL Fact Finding and Staff Satisfaction Survey

MINISTRY OF MANPOWER STUDENT CENTERED LEARNING IN CoTs

Teaching Staff Feedback on SCL

Academic year :	Semester:
Department/ Specialization:	Level:

Please read each of the statements below and tick (✓) the appropriate box to the right that best fits your judgement using the following scale:

①	②	③	④	⑤	NA
No/ Strongly Disagree	Disagree	Not sure	Agree/ V. Good	Yes/ Strongly Agree	Not Applicable
Very poor	Poor	Good	V. Good	Excellent	

	Assessment Elements	①	②	③	④	⑤	NA
A.	Awareness on SCL						
1.	I fully understand SCL and value its benefits to students.						
2.	I am aware of strategies of SCL in CoTs and know how to achieve them.						
3.	I know all about SCL activities, like online class/ group discussion; read, write, share & pair; peer and self-assessment; role play, debriefing, etc.						
4.	My role in SCL is clear to me, and I know what I should do to improve my students' learning						
5.	I got enough information and skills to make use of resources/ tools/technologies that support SCL, like OER, and MOOCs, Moodle, Student Response Systems, etc.						
6.	I am clear about the changes in the assessment associated with SCL.						
7.	I am aware of SCL challenges and know how to deal with each.						
B.	Use and integration of open resources and technology supporting SCL						
8.	I regularly give my students assignments from OER to expand their learning.						
9.	I am incorporating MOOCs to let students learn more about the outcomes						
10.	I am using Moodle to provide my students opportunity for active learning activities like online discussion, online quizzes, .						
11.	I ask students to access Student Response System Applications using smartphone to join group learning activities.						
12.	Handout for the course material is no more used by my students						
C.	Satisfaction with the effectiveness of SCL activities						

13.	Introducing SCL techniques has encouraged student involvement and participation.						
14.	The SCL repository is well updated and the materials shared by teachers across the CoT's are very useful.						
15.	Most of the activities in my course delivery plan follow a learner-centered approach.						
16.	The course delivery takes into account different learning styles, attitudes, needs of students.						
17.	The SCL activities are designed with variety and content that appeals to the students; help develop students' confidence, draw students' attention to important points, etc.						
18.	The SCL process is well organized to improves students critical thinking, ability to face various situations and to apply their knowledge for obviating and solving problems.						
19.	My students raise and share innovative and creative ideas and suggestions to improve the curriculum and their learning and assessment						
20.	I found many students coming prepared in advance for the class.						
21.	My students are very active in class and online discussion about course outcomes.						
22.	Majority of my students are interested in SCL activities and find it very beneficial.						
D.	Challenges with SCL						
23.	Students are cooperative and do not resist SCL approach.						
24.	Time is enough to cover the main key outcomes of the course						
25.	Large class size is not a problem for me to implement SCL activities						
26.	SCL supporting resources are available and easy to use.						
27.	The course assessment scheme is flexible enough to encourage SCL activities						
28.	I find time for my self-development in SCL						
29.	Colleagues are supportive and cooperative to learn more about SCL						
30.	The college/dept./center encourages the culture and implementation of SCL based teaching standards.						
31.	The college/dept./center arranges regular professional development programmers for teaching staff focusing on SCL.						
32.	I like SCL approach, it does not imply any burden to me						

Are there any comments or suggestions about SCL?

Thank you for completing this questionnaire.