Effect of Active Learning Strategies on Classroom Engagement among Baccalaureate Nursing Students

Hanaa Mohamed Ahmed

Lecturer of Nursing Administration, Faculty of Nursing, Assiut University, Assiut, Egypt

E-mail of the corresponding: author, drhanaa57@gmail.com

*Correspondence: Hanaa Mohamed Ahmed,

E-mail drhanaa57@gmail.com; Address: Faculty of Nursing, Assiut University, Assiut, Egypt.

Abstract

Background: Active learning is an instructional method that engages students in the learning process**. Aim:** to explore the effect of active learning strategies on classroom engagement among baccalaureate nursing students. **Design:** Descriptive, cross sectional study design was used. **Setting:** The study was conducted in Faculty of Nursing at Assiut University **-** Egypt. **Subject:** Convenient sample for 4th year undergraduate baccalaureate nursing students in 2nd semester (N=107) divided into four groups. **Study tool:** The data were collected using: Self-administered questionnaire including: part (I) Socio demographic data, part (II) Active Learning Scale, part (III) Student Engagement scale, **Results:**. There were positive correlation between active learning strategies & class room engagement for nursing students. **Conclusion:** there were statistically significant differences between active learning and classroom engagement among studied nursing students with all items. **Recommendation:** Encourage repeated A study researches at all classes in this faculty to identify and measure faculty behaviors that promote engagement in the classroom would allow for comparison of student and instructor perceptions and increase the validity of the measurement of active learning environments**.**

Introduction

Nursing schools are facing demands to admit and graduate increasing numbers of students to meet the needs of the future healthcare system. Nursing schools must therefore admit, retain and graduate qualified applicants, able to provide care in complex healthcare environments. Educators are challenged to identify the best educational practices to retain and engage learners in the learning process. Learning environments may influence student engagement through the use of active learning strategies in the classroom **(Popkess & McDaniel, 2017)**.

Learning is not a spectator sport, students do not learn much just by sitting in class listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves." Active learning is any approach to instruction in which all students are asked to engage in the learning process. Active learning stands in contrast to "traditional" modes of instruction in which

students are passive recipients of knowledge from an expert. Active learning can take many forms and be executed in any discipline. Commonly, students engage in small or large activities centered on writing, talking, and problem solving, or reflecting **(Arthur, et al, 2014)**.

Ann, (2010) reported that, Active learning is a student centered approach in which the responsibility for learning is placed upon the student, often working in collaboration with classmates. In active learning teachers are facilitators rather than one way providers of information. The presentation of facts, so often introduced through straight lecture, is deemphasized in favor of class discussion, problem solving, cooperative learning, and writing exercises (graded and ungraded). Other examples of active learning techniques include role-playing, case studies, group projects, think-pair-share, peer teaching, debates, Just-in-Time Teaching, and short demonstrations followed by class discussion. There are two easy ways to promote active learning through the discussion. The first method is the mini lecture format in which the instructor talks ten to twenty minutes about a particular topic and

then pauses for students to consolidate their notes, find gaps, and work with classmates to fill in gaps. The second technique is an active listening lecture where students just listen to a lecture without writing notes and then, after ten to twenty minutes, the student works with a classmate or small group to recall, clarify, and elaborate on the lecture's content.

Prince, (2014) reported that, Active learning is superior to traditional lectures for the following reasons, Improves knowledge retention; To learner attention span decreases after 15 to 20 minutes. A traditional lecture is unlikely to be effective after this period. Identifying opportunities for engagement can facilitate both assimilation and retention of new information. Achieves deeper understanding, traditional lectures typically target basic levels of learning which includes memorization of facts. Active learning facilitates the application of knowledge or skills, which promotes the achievement of higher levels of learning on Bloom's taxonomy. Encourages self-directed learning, engaged in the learning process, students are more likely to seek out opportunities to learn independently.

The following Active learning strategies described by **Rowles & Brigham (2015)** where whom said, Think Pair Share: students ponder the answer to a question and then share their thoughts with a neighbor. Role Playing: "each student takes the role of a person affected by an Earth science issue, such as a volcano or a polluted lake and studies the impacts of Earth science issues on human life and/or the effects of human activities on the world around us from the perspective of that person. Discovering plate boundaries, this is a group discussion method employing many aspects of cooperative learning. Students use the "Jigsaw" technique to learn more about plate tectonics. For a more general discussion of cooperative learning see the module on cooperative learning. Peer Review: students review and comment on materials written by their classmates. Discussion: promoting a successful discussion depends on correctly framing questions. Discover tips for framing discussion questions to promote higher order thinking. Role Playing: students look at the topic from the perspective of a character, affect and affected by a chosen topic. Problem solving

using real data: students use a variety of data to explore scientific questions. Just in Time Teaching: students read assigned material outside of class, respond to short questions online, and then participate in collaborative exercises the following class period. Game Based Learning: uses competitive exercises, either pitting the students against each other or through computer simulations.

Meyers, et al. (2013) reported that, the classroom experiences and faculty suggestions in providing a practical guide to teaching strategies to encourage active learning in the college classroom and a wide range of teaching tools which ask students to apply what they are learning are considered, including problem-solving exercises, cooperative student projects, informal group work, simulations, case studies, and role playing. Additionally, the book discusses how various small-group exercises, simulations, and case studies can be blended with the technological and human resources available outside the classroom.

Student engagement occurs when students make a psychological investment in learning and try hard to learn what school offers. They take pride not simply in earning the formal indicators of success (grades), but in understanding the material and incorporating or internalizing it in their lives. It is increasingly seen as an indicator of successful classroom instruction, and as a valued outcome of school reform. The phrase was identified in 1996 as the latest buzzword in education circles. Students are engaged when they are involved in their work, persist despite challenges and obstacles, and take visible delight in accomplishing the work. Student engagement is a function of student characteristics and college learning environments that involve students in doing things and thinking about the things. The academic environment, which includes student engagement in academics with peers and faculty, along with faculty use of active learning strategies are important variables in student success **(Frederick, et al. 2014)**.

Wolff, et al. (2015) defined the student engagement as student's willingness, need, desire and compulsion to participate in, and be successful in, the learning process promoting

higher level thinking for enduring understanding. "Student engagement is also a usefully ambiguous term for the complexity of 'engagement' beyond the fragmented domains of cognition, behavior, emotion or affect, and in doing so encompass the historically situated individual within their contextual variables (such as personal and familial circumstances) that at every moment influence how engaged an individual (or group) is in learning. Student engagement is frequently used to, "depict students' willingness to participate in routine school activities, such as attending class, submitting required work, and following teachers' directions in class." However, the term is also increasingly used to describe meaningful student involvement throughout the learning environment, including students participating in curriculum design, classroom management and school building climate.

Fredericks, et al (2014) describe three main dimensions of student engagement as the following: Behavioral Engagement: this covers students' participation in lessons, such as attendance and concentration levels, as well as their involvement in social aspects of learning, and whether or not they engage with extracurricular activities. Emotional Engagement: this covers students' feelings, especially towards the subject or course they are studying, teacher, peers, overall academic experience, and whether or not they feel the lessons actually have value. Cognitive Engagement: this covers students' motivation and investment in own education. It also includes the extent to which they take ownership of own learning, are able to self-regulate, and wish to pursue personal educational goals.

Significance of the study:

The significance of the study is active learning that increased student's engagement for their classroom. By searching on the internet it was noticed that there were no studies done in Upper Egypt about active learning among nursing staff, so the researchers enthusiastic to find the results of Active learning strategies among 4th year nursing students in faculty of nursing at Assuit University.

Aims of the study:

The study aims to explore the effect of active learning strategies on classroom engagement among baccalaureate Nursing Students.

Research questions: The research question that guided this study was:

What are the relation between active learning and class room engagement among studied subjects?

Research design:

A descriptive, cross sectional research design was utilized for the current study.

Setting: This study was conducted at the classrooms in faculty of nursing at Assiut University.

Study subject:

A convenient sample of undergraduate baccalaureate nursing students in 4th year in the 2nd semester (No=107) divided into four groups every one of (26- 27 students).

Data collection tools: The study tools included the following: This tool self-administered questionnaire it developed by the researcher and included the following parts, part (I) Socio-demographic data for the study subject including name, age, gender, place residence. Part (II), Active Learning Scale, It was developed by the researcher after reviewing the literature **Freeman, et al (2014) & Edward, (2015)** to assess study subject responses for active learning strategies and consisted of 13 items. Scored by 3 points Likert scale ranging (3) marks for **always** answer, (2) marks for **sometimes** answer and (1) mark for **never** answer. Part (III), Student Engagement Scale, It was developed by the researcher after reviewing the literature **Colbert, et al (2017) & Tang, et al (2017)** to assess study subject responses for classroom engagement and consisted of 15 items. Scored by 3 points Likert scale ranging (3) marks for **always** answer, (2) marks for **sometimes** answer and (1) mark for **never** answer.

Methods:

The face validity was done by 5 experts from nursing administration staff, Faculty of

Nursing, Assuit University who reviewed the study tools. Also, content validity was checked and analyzed using confirmatory factor analysis test to assure (importance, clearness, and accountability of each items of the study tool) and its result was ≥ 1.8 for all items of the study tool. The reliability was carried out using the Cronbach's Alpha Coefficient test to nursing student's responses toward strategies of active learning and engagement for classrooms (0.89). The pilot study was conducted on 10% of the subject to estimate the time needed to fill out the tools. The data obtained from the pilot study were analyzed and no changes were done, so the subject of the pilot study was included in the main study.

Study Procedure:

An official approval letter was obtained from the dean of the Faculty of Nursing, Data were collected from the selected studied subject, at initial interview the researcher introduced herself to initiate a line of communication, nursing student's agreement for voluntary participation was obtained and purpose and nature of the study was explained. The researcher obtained the socio demographic data from the nursing staff using tool I

The researcher assesses nursing students using an (Tool II & Tool III) after teaching course (10 topics) immediately by using strategies of active learning (Case studies, {think, pair, share}, Role play, discussion in small groups, peer assessment and critique & self-assessment and critique). Classify the student into basic four groups each group contain of (26- 27 students) and Learners split into teams of 5-7 students in the small subgroups to suring the nursing students responses in perfect manner, and assesses the response of the nursing students through those tools. The period of data collection was 2 months from end February 2017 to end April 2017.

Statistical analysis:

The statistical Package for (SPSS) version (23) was used to analyze data. Descriptive statistics was used for the quantitative data in knowledge, and socio demographic data.

Descriptive statistics included frequencies, percentages and means ± SD. Independent t-test and Pearson correlation were used to find out the relationship between total knowledge, practice and personal data (correlation is significant at the P. value 0.05).

Ethical considerations: Research proposal was approved from ethical committee in the faculty of nursing. There was no risk for study subjects during application of research. The study followed common ethical principles in clinical research. Oral consent was obtained from nurses that were willing to participate in study, after explaining the nature and purpose the study. Confidentiality and anonymity were assured. Study subjects had the right to refuse to participate and or withdraw from the study without any rational any time & Study subject privacy was considered during collection of data.

Results:

The following figures represent the percentage distribution of socio demographic for the studied subjects in Faculty of Nursing at Assiut University.

This table presented that the highest mean scores of the studied subject as regard the following items; produced one or more drafts of an assignment for this course before producing the final product. reflected on what I'm learning in this class, participated in case studies or problem-solving exercises in this class & worked on assignments with other students in or out of this class (2.72 ±1.002.40 ± 1.22, 2,36 ±1.22, & 2.06 ±1.34) respectively. There were highly statistical significant differences among all items of active learning strategies for the studied subject (P. value =0.000***).

This table presented that the highest mean scores were in learning a lot in this class this semester & feel as though I am learning things in this class that are worthwhile to me as a person (5.15 ±0.99 & 5.00 ±1.09) respectively. There were highly statistical significant differences among all items of classroom engagement for the studied subject (P. value = 0.000***).
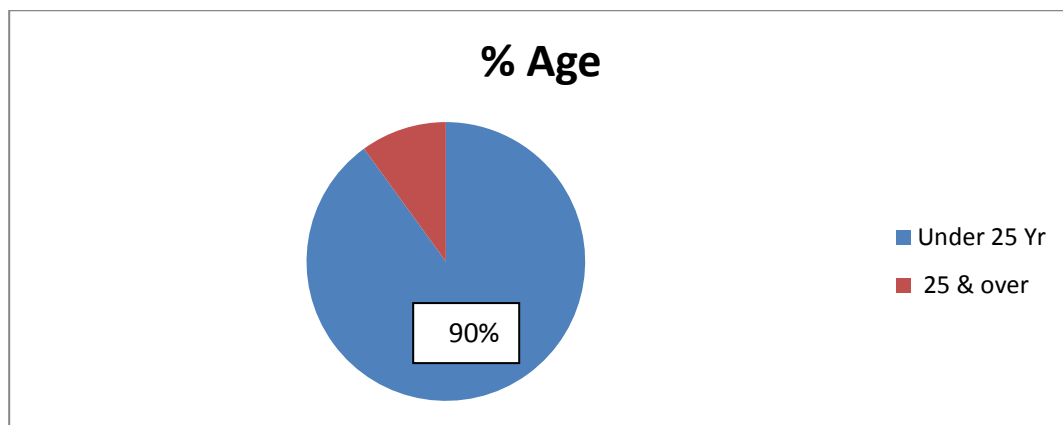
% Age

- Under 25 Yr
- 25 & over

90%

Fig. (1): Showed that, the highest percentage of studied students as regard their age were 90% under 25yrs old.
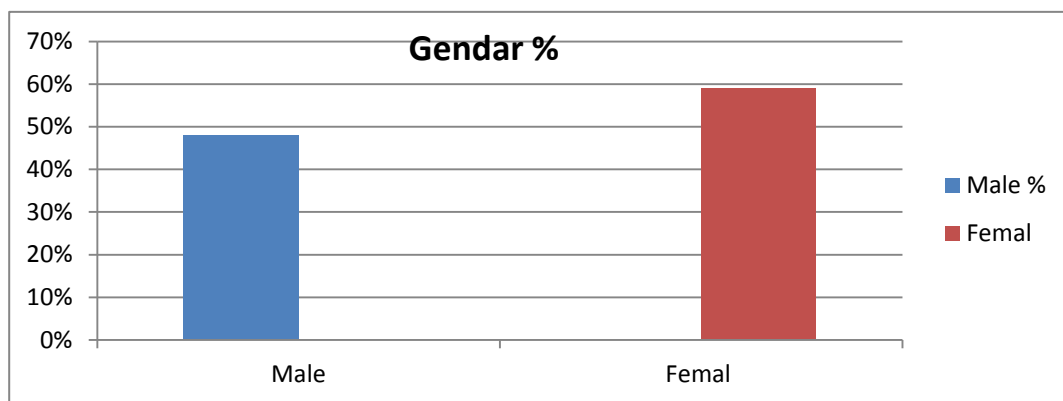
Gendar %

- Male %
- Femal

Fig. (2): Illustrated that, the highest percentage of studied nursing students as regard their gender were 55.1 % female.

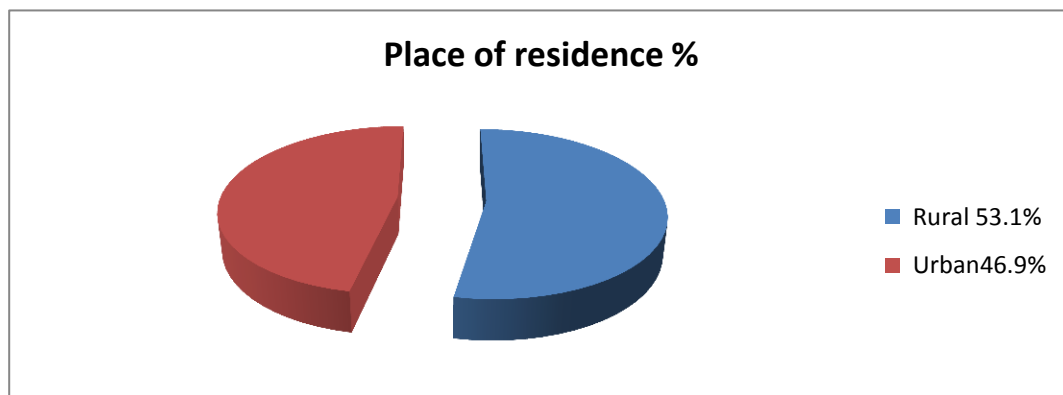## Place of residence %

- Rural 53.1%
- Urban46.9%

Fig.(3): Described that, the highest percentage of studied nursing students as regard their place residence were 53.1 % place in the rural.

Table (1) Mean Scores of Active Learning Items among studied students (N= 107)

| Items	Mean ±SD	P. Value
I developed a presentation to give to other students in this class	0.95±1.28	0.000***
I produced one or more drafts of an assignment for this course before producing the final product.	1.87± 1.15	0.000***
I produced one or more drafts of an assignment for this course before producing the final product.	**2.72 ±1.00**	0.000***
I participated in role playing in the course.	1.22 ±1.61	0.000***
I worked on assignments with other students in or out of this class.	**2.06 ±1.34**	0.000***
I tutored other students in or out of this class.	0.48 ±1.18	0.000***
I participated in case studies or problem-solving exercises in this class.	**2.36 ±1.22**	0.000***
I participated in human patient or "hands" on simulations for this class.	1.30± 1.54	0.000***
I discussed ideas and concepts taught in this course with instructor.	1.70± 1.34	0.000***
I reflected on what I am learning in this class.	**2.40± 1.22**	0.000***
I received feedback from my peers about my work.	1.76± 1.25	0.000***
The instructor developed a learning environment in which the students were encouraged to participate in class.	1.53± 1.08	0.000***
As a learner, I felt comfortable participating in the active learning process.	1.75± 1.08	0.000***
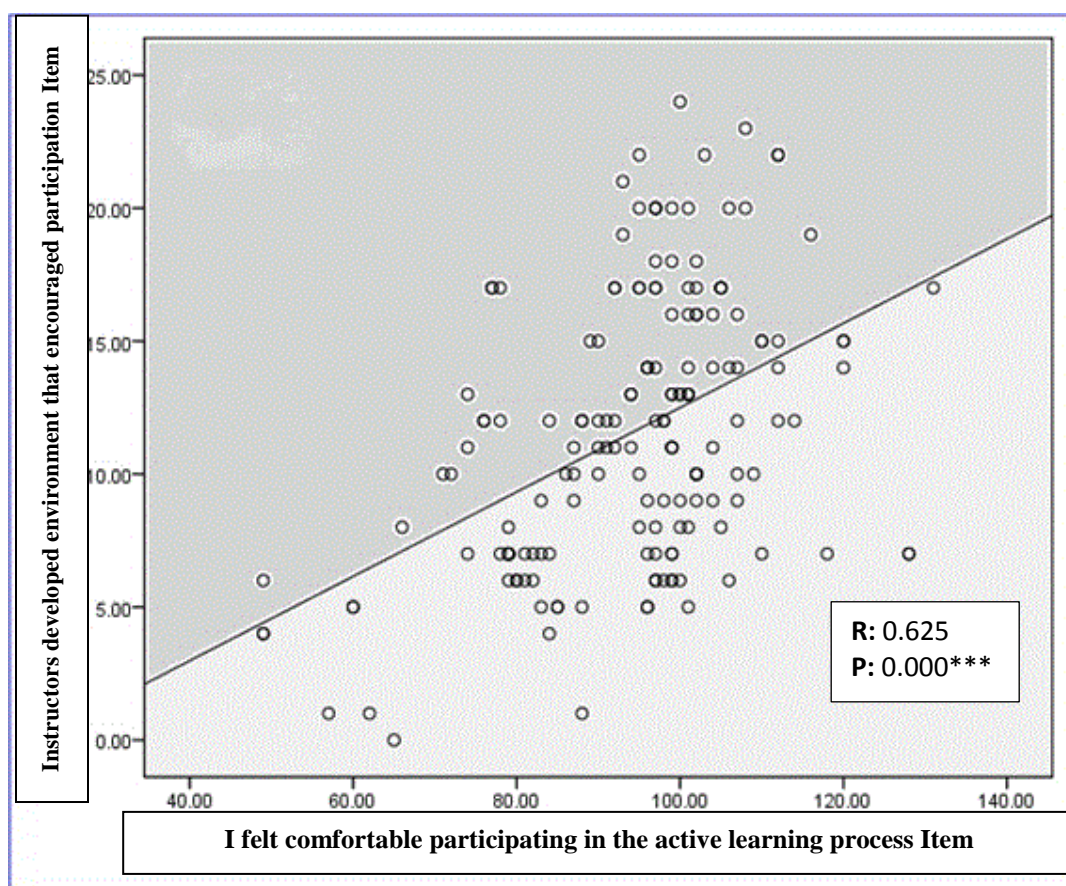
Fig.(4): showed that, Positive correlation between Instructors developed environment that encouraged participation & I felt comfortable participating in the active learning process Items and there were statistically significant differences (P= 0.000***).

Table (2) Mean Scores of classroom engagement Items among studied students (N= 107).

| Items	Mean ± SD	P. Value
1. I can usually find ways of applying what I'm learning in this class to something else in my life.	4.95 ±1.12	0.000***
2. I feel energized by the ideas that I am learning in this class.	4.50 ±1.14	0.000***
3. I feel as though I am learning things in this class that are worthwhile to me as a person.	**5.00 ±1.09**	0.000***
4. I am learning a lot in this class this semester.	**5.15 ±0.99**	0.000***
5. I find myself thinking about what I'm learning in this class even when I'm not in class.	4.24± 1.41	0.000***
6. I often discuss with my friends what I'm learning in this class.	4.00 ±1.36	0.000***
7. I usually think about how the topics being discussed in this class might be connected to things I have learned in previous courses.	4.77± 0.97	0.000***
8. When I am learning about a new idea in this class, I think about how I might apply it in practical ways.	4.64± 0.99	0.000***
9. Sometimes I get so interested in something I'm studying in this class that I spend extra time trying to learn more about it.	3.45± 1.39	0.000***
10. I regularly participate in class discussions in this class.	4.16± 1.26	0.000***
11. I ask my professor questions during class if I do not understand.	4.39± 1.34	0.000***
12. Sometimes I am afraid to participate in this class.	4.83± 1.35	0.000***
13. Often I find my mind wandering during this class.	3.42± 1.32	0.000***
14. In the last week, I've been bored in this class a lot of the time.	3.86± 1.32	0.000***
15. It's hard to pay attention in this class.	4.14 ±1.33	0.000***
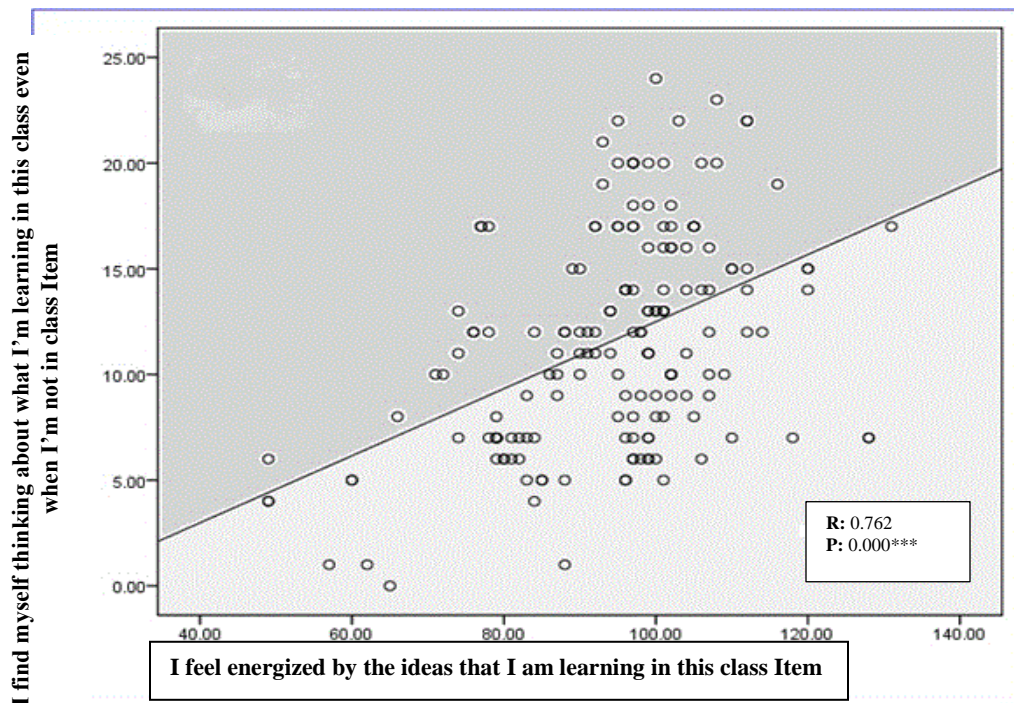
Fig (5): showed that, Positive correlation between I feel energized by the ideas that I am learning in this class Item & I find myself thinking about what I'm learning in this class even when I'm not in class Item and there were statistically significant differences (P= 0.000***).
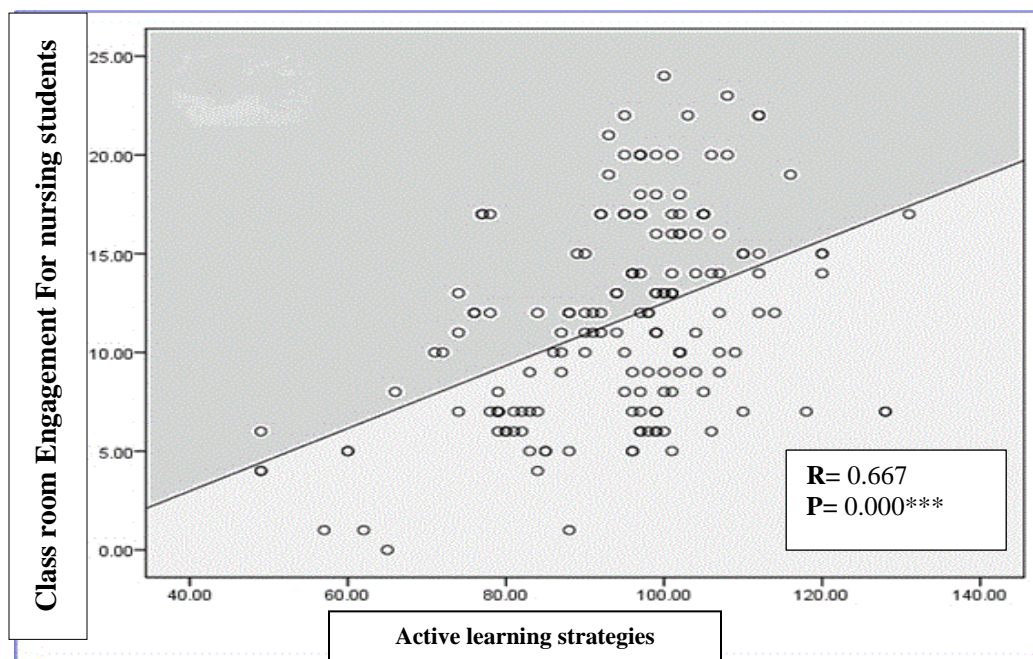
Fig (6): showed that, Positive correlation between Active learning strategies & Class room Engagement For nursing students and there were statistically significant differences between active learning and class room engagement among studied nursing students with all items (**R=** 0.667 & P. = 0.000***).

Discussion:

Active learning strategies those increase the students' knowledge retention, deepen understanding and encourage self-directed learning, it lead to the students engaged in the learning environment. The present study was conducted with the aim to explore the effect of active learning strategies on classroom engagement among baccalaureate nursing students.

The present study used the Active learning strategies to motive the students to engaged in the classroom and improve the students capabilities in self-directed learning. This finding consistent with **Barkley, (2010) & Educational Innovation Center, (2017):** showed that, when using active learning strategies does not require abandoning the lecture format. Rather, adding small active learning strategies can make lecturing more effective for student learning. These activities give students just a minute or two to check their understanding of recent material, practice a skill or highlight gaps in their knowledge before giving an explanation. On the other hand **Pompano, et al. (2018):** Who described that, the teaching experiences at University of Virginia that used active learning to promote student engagement, the experience of many faculties shows that implementing active learning is an effective method to enhance student engagement in a course. Moreover, **Venton, (2018)** reported that, more fully active learning classes have also been share practical tips and tricks, advantages, and limitations to active learning in the remote setting, and encourage instructors and departments to consider making this type of learning a priority. Students are required to participate in meaningful learning activities and think about the things they are doing. This is in contrast to traditional lectures where learners passively receive information from the instructor.

In the current study the highly positive correlation between Active learning strategies & Class room Engagement For nursing students and there were statistically significant differences between active learning and class room engagement among studied nursing students with all items, This finding consistent

with **Thomas, (2015)** who showed that, Pre lecture preparation and interactive lecture some valuable lessons and pointers for course instructors across disciplines about the pedagogy and use of power point as an instructional method for enhancing student engagement and active learning, and agreed with **Chris**, **et al (2016).** On the other hand **Popkess. & Mc Daniel , (2017)** who indicated that, there was a significant, though small, positive difference between student engagement scores in classrooms using more active learning strategies than those in classrooms using more passive learning strategies. The data indicated that there is a significant, though small, difference between student engagement scores in classrooms using passive learning strategies than those in classrooms using active learning strategies.

The present finding revealed that, the highest mean scores were in learning a lot in this class this semester & feel as though I am learning things in this class that are worthwhile to me as a person (5.15 ±0.99 & 5.00 ±1.09).Also, the positive correlation between Instructors developed environment that encouraged participation & I felt comfortable participating in the active learning process Items. This finding supported by **Popkess & Mc Daniel , (2017)** where who depicted the students described engaging more frequently in meaningful processing activities that relate more to cognitive functions such as studying notes or handouts, reflecting on their learning and were less engaged in participation activities such as participating in case studies, role play, simulations, tutoring other students or developing presentations. On the other hand this finding supported by **Cooper, & Richards,(2017):** whom study revealed that The majority of students indicated that they agreed with the statement that instructors "developed and environment that encouraged participation" and that students "felt comfortable participating in active learning", however, the data reflected that most are not engaging in participation in the classroom on a frequent basis.

The researcher point of view, the active learning acts as formative assessment and provide valuable feedback to instructors about what students do and do not understand. Help

students become more self-aware of their own learning progress, so, should be use active learning strategies in continuously manner.

But, this finding inconsistent with **Pike, (2013)** reported that, a slightly lower mean score in the participation. This subscale represents students' active involvement and contributions during class discussions. This is consistent with at least one other study conducted by this researcher in a secondary analysis of data where nursing students majors perceived themselves as less engaged in active and collaborative learning than their peers in education (p.v =.05)

Conclusion:

Based on the results of the present study, the following conclusions: A highly positive correlation between Active learning strategies & Class room Engagement For nursing students and there were statistically significant differences between active learning and class room engagement among studied nursing students with all items**.**

Recommendations:

The researcher recommended the following:

- Encourage repeated A study researches at all classes in this faculty to identify and measure faculty behaviors that promote engagement in the classroom would allow for comparison of student and instructor perceptions and increase the validity of the measurement of active learning environments**.**

- Further use the optimal type of active learning to improve classroom engagement.

- Enhance the understanding of the difference between various levels of active learning in the classroom. Perhaps, as suggested by this study, there are qualitative differences in active learning occurring in the classroom that impact engagement, versus the amount of activities or times they occur.

- Use of a triangulated method of survey (student and faculty), classroom observation and focus groups to assess the use of active learning would provide the ability to compare and validate research findings.

- Apply active learning classroom to be used for the purpose they were designed for. This emphasizes the importance of faculty training and development, both in the design of active, collaborative learning activities as well as effective use of technology, and faculty-driven activities to enhance learning. Merely creating space without supporting faculty to use them can be problematic.

References:

Ann, A. (2010): Active Learning Increases Student Performance in Science, Engineering, and Mathematics May 2014Proceedings of the National Academy of Sciences 111(23(DOI:10.1073/pnas.1319030111

Arthur W., Paris, L. & Zelda F. (2014): Seven Principles for Good Practice," AAHE Bulletin 39: 3-7

Barkley, E. (2010): Student engagement techniques: A handbook for college professors. San Francisco, CA: Jossey-Bass.

Chris O'Neal & Tershia Pinder-Grover (2016): Active Learning Strategies

Colbert JT, Olson JK, Clough MP. (2017): Using the web to encourage student-generated questions in large-format introductory biology classes. CBE—Life Sci Educ.; 6:42–8.

Cooper, A. & Richards, J. (2017): Lectures for Adult Learners: Breaking Old Habits in Graduate Medical Education. The American journal of medicine, 130(3), 376–381.Yale Poorvu Center for Teaching and Learning. Active Learning.

Educational Innovation Center, (2017): *Advance your teaching. Engage your learners. Active learning Office of the Executive Vice President and Provost University Office Plaza, Suite 4002221 University Ave SE, Minneapolis, 55414 P: 612-625-3041 | cei@umn.edu*

Edward, S. (2015): Active Learning in the Middle Grades , Middle School Journal 46(5):26-32https:// www. researchgate. net/publication/281666203_Active_Learning_in_the_Middle_Grades

Frederick, S., Blumen, F. & Paris, L. (2014): broke down student engagement further into three main dimensions.

Freeman S, Eddy SL, McDonough M, Smith MK, Okoroafor N, Jordt H,. (2014): Active learning increases student performance in science, engineering, and mathematics. Proc Natl Acad Sci.; 111: 8410 LP–8415.

Meyers, Chet; Jones, Thomas B. (2013): Promoting Active Learning, Strategies for the College Classroom.

Pike,G. (2013): NSSE Benchmarks and Institutional Outcomes, A Note on the Importance of Considering the Intended, Uses of a Measure in Validity Studies Res High Educ (2013) 54:149–170

Pompano, R.,Musgrove, Megan A. Catterton, (2018): Analyzing Immunity at the University of Virginia Hannah B. "Best practices for design and fabrication of biomicrofluidic devices by resin 3D printing.

Popkess, A. & Mc Daniel, A. (2017): Are Nursing Students Engaged in Learning?

Prince, M. (2014): Does Active Learning Work A Review of the Research. Journal of Engineering Education, 93, 223-231.

Rowles, J., & Brigham, C. (2015): Strategies to promote critical thinking and active learning. In D. M. Billings & J. A. Halstead (Eds.), Teaching in Nursing: A guide for faculty (Vol. 2nd Edition). St. Louis, MO: Elsevier.

Tang G, El Turkey H, Cilli-Turner E, Savic M, Karakok G, Plaxco D.(2017): Inquiry as an entry point to equity in the classroom. Int J Math Educ Sci Technol.; 48:S4–15.

Thomas, W. (2015): Enhancing Student Engagement and Active Learning through Just-in-Time Teaching and the Use of Power point, *International Journal of Teaching and Learning in Higher Education*, p.154-163

Venton, B. (2018): Strategies for enhancing remote student engagement through active learning. ABCs of Education and Professional Development in Analytical Science

Wolff, M., Wagner, J., Poznanski, S., Schiller, J., & Santen, S. (2015): Not another boring lecture: engaging learners with active learning techniques. The Journal of emergency medicine, 48(1), 85–93.