



## RESEARCH ARTICLE

## Impact of Problem based learning on acquiring 21 century Skills among Nursing students (comparative study)

\* Shereen Ahmed Ahmed Qalawa , Lamiaa Ismail Keshk\*\*

\* Lecturer , Department of Medical-Surgical Nursing, Faculty of Nursing , Port - Said University, Egypt

\*\*Assistant professor, Department of nursing administration, Faculty of Nursing, Helwan University, Egypt

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#### \*Corresponding Author

Shereen Ahmed Ahmed  
Qalawa

### Abstract

**Background:** As we move into the 21st century, there are increasing demands placed on education to ensure their practice is based on sound evidence , thus , nursing students of today will be nurse practitioners of tomorrow they must be prepared to be ready at the outset to exhibit not only technical know-how but to possess a host of professional behaviors' such as own initiative, time management skills, ability to direct own learning with interpersonal and organizational skills which can successfully facilitate them to interact with patients, care givers, and other health care professionals. Problem Based Learning is an approach to teaching and learning that has been designed using Theory and research evidence about the nature of learning and of professional expertise and has been widely adopted. The key characteristics of PBL are that it involves team work and communication skills, a problem-solving capacity, critical, analytical and creative. **Aim :** to investigate the impact of using problem based learning on acquired 21 century skills among nursing students' in both Al Qassim University and Port-Said University. **Subject and methods:** The present study is a descriptive comparative design carried out in Al Qassim University in kingdom of Saudi Arabia and Port- said University in Egypt for all students in four levels through using one tool contains 38 items divided into 6 parts for measuring communication, decision making, problem solving & critical thinking, team work ability, responsibility ability, self esteem & satisfaction. **Results:** the most Saudi and Egyptian nursing students have adequate acquiring 21 century Skills regarding communication, decision making, problem solving, responsibility, team work, self esteem and self awareness skills. **Conclusion:** The present study concluded that the Problem based learning approach has positive impact on student's acquiring the most of 21 century skills. **Recommendations:** PBL Approach requires training, practice, and patience by encouraging students throughout the process and modeling thinking behaviors. So, this approach recommended for application in teaching student nurses for improve students' 21 century skills.

#### Key Key wards:

Impact, Problem based learning, 21 century Skills, student's nurse

## Introduction

The 21 century sees information explosion, with knowledge and facts fast becoming obsolete. This makes it important that nurses become life-long learner to take on new information and adaptation to future change but here too nurses have difficulty keeping current. As nursing students of today will be nurse practitioners of tomorrow they must be prepared to be ready at the outset to exhibit not only technical know-how but to possess a host of professional behaviors' such as own initiative, time management skills, ability to direct own learning with interpersonal and organizational skills which can successfully facilitate them to interact with patients, care givers, and other health care professionals (**Mohamed, 2006**)

The dynamic health care workplace of the 21 century has prompted a re-evaluation of traditional nursing curricula among nursing programs in an attempt to prepare nursing students for the complexity and diversity of the workplace. Subsequent curricular changes have emphasized goals in education that foster development of caring and critical thinking behaviors among graduates, promoting a renewed focus on caring and caring knowledge (**Duffy, 2005**). The goal of problem-based learning (PBL) is to encourage students not just to acquire content, but to discover, filter and integrate information, in order to practice what Benjamin Bloom (in his famous taxonomy of learning) categorized as "higher-order" thinking skills. (**Keeling, 2008**)

Occasionally, Problem-based learning (PBL) allows students to learn from each other while they construct meaning. Active, constructivist, interactive learning approaches like PBL are believed to yield important cognitive and motivational benefits (**Chi, 2009**). PBL motivates students to integrate new information with prior knowledge and personal experience that is activated by discussing authentic problems in small groups. In a typical session, students clarify unknown concepts in the problem description, formulate a problem definition, and engage in problem analysis by brainstorming and then elaborating on and clustering the results of the brainstorm. Next, learning goals are formulated and students start their individual study. When they return to the tutorial group, students report their findings and try to synthesize and integrate new information. PBL has been adopted in various fields of study, including medical education, economics, engineering, biology, psychology and law. Positive curricular effects of PBL have been reported on graduation rate and study duration. In addition, PBL students have been reported to possess better practical and interpersonal skills (**Schmidt et al., 2009; Schmidt, 2010**).

**Mills (2008)** indicated that one of the disadvantages that have been reported in relation to the PBL process is that it is a very different teaching process to the one that students have already received and, as a result, it can be stressful and disorienting. The fact that students are no longer given the answers can require a change in their attitude and mind-set, and so it is better if it is introduced in a student's first year on a course. So, Problem based learning is an ideal way to develop 21century skills and how teachers shift their standards – based curriculum from direct instructions of passive students to active engagement of problem solvers and question asks. (**Barell, 2010**).

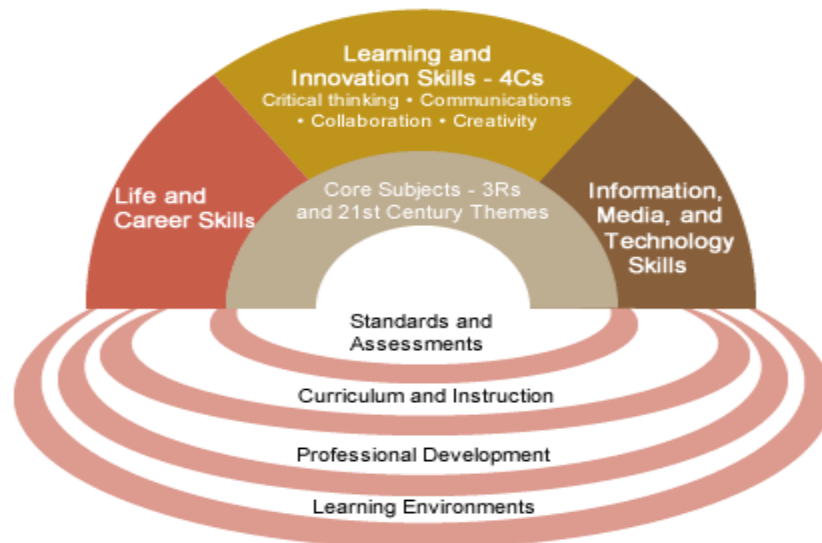
In this context, the key characteristics of PBL to acquired 21 century skills are that it involves team work and communication skills, a problem-solving capacity, critical, analytical and creative, as well as individual research. In addition to , "group learning thinking facilitates not only the acquisition of knowledge but also several other desirable attributes, such as communication skills, teamwork, problem solving, independent responsibility for learning, sharing information, and respect for others. PBL can therefore be thought of as a small, group - teaching method that combines the acquisition of knowledge with the development of generic skills and attitudes" **Wood (2003)**

In the rapidly changing 21st century, nurse practitioners are expected to possess higher order thinking ability to constantly update technical skills while possessing caring attitude. To meet this demand nursing education must develop nurses with continuous learning ability and soft skills attributes of effective communication, critical and reflective thinking, teamwork, counseling, intercultural understanding, ethics, and problem solving. These attributes are developed into a Personal and Professional Development (PPD) course within the Bachelor of Nursing programme. However, with what has been termed the 'explosion' of information in the 21 century, greater attention began to be paid to the role of the student in managing this information. This trend led to what has become known as problem-based learning (PBL). (**Mohamed , 2006 & Engelbrecht and Wildsmith , 2010**)

In nursing profession, Problem Based Learning (PBL) is one such method of instruction that has been implemented in numerous nursing and other health-related education programs to meet the needs of the changing

health care environment. The changing role of the nurse within the health care system necessitates a change in the way nursing students are prepared for the workplace. PBL is an innovative way of socializing students to value and mobilize past knowledge, constructing new knowledge from this foundation. PBL is process learning requiring group collaboration and teamwork that is successful only when students are able to communicate effectively between their peers and the group tutor. (Oosterbroek, 2009)

On the other hands, Framework of The phrase “21st Century Skills” encompasses several inter-related skill sets: life and career skills; learning and innovation skills; information, media, and technology skills; and core-subject mastery and familiarity with interdisciplinary themes. As shown in Figure 1, these skill sets are framed as desired outcomes for learners that are built upon standards and assessments, curriculum and instruction, teacher professional development, and learning environments. As such, the framework provides a holistic representation of the student outcomes and support systems required to establish 21st century career and life readiness. (Ledward and Hirata, 2011)



**Figure 1. Framework for 21st Century Student Outcomes and Support Systems.**

According to Yumuk (2002), in all formal educational contexts in developing countries, recitation is a common teaching mode. The classrooms are usually teacher-centred, and students receive their knowledge from their teachers passively. Recitation-based teaching mainly encourages learners to develop skills to master school knowledge, which involves memorization of information learnt at school rather than action knowledge, which encompasses critical reflection on new information and its application to a wider context

So, recent researches emphasized on shift in science education towards more student-centered teaching approaches. Indeed, relevant literature has shown that when students are involved in the learning process actively; meaningful learning, understanding and retention can be enhanced, also, classroom environments which focus on students' effort and strategy use instead of their ability, encourage students to compare and realize the difference between their past and present performance, and reduce the emphasis on grade and social comparisons can improve student learning. (Araz, 2007)

According to Regan, 2008 based on the Partnership for 21st Century Skills, the skills we need to be teaching include the following ; Information, media literacy, and communication skills , Thinking and problem-solving , Interpersonal, collaborative, and self-direction skills , Global awareness , Economic and business literacy, including entrepreneurial skills and civic literacy . Moreover, the changing economy makes it more of a necessity that our students can use technology to solve problems, collaborate, and create.

Finally, The PBL approach to learning in medical education can be considered as the most significant educational innovation in the past four decades. While , PBL is considered by now as a well-established method of learning and instruction there is an absence of research that has evaluated the role of the PBL setting in the development of a culture of caring among nursing students. (Oosterbroek, 2009). Therefore this study aims to identify the impact of problem based learning on acquiring 21century skills among nursing students'. Fortunately, the only one nursing college used Problem based learning approach in Saudi Arabia was namely Al Qassim University which started its graduation programmed since 2009. Also, Port- said university is considered as the first nursing college used problem based learning approach in Egypt under the old name of Suez Canal University before separated as Port - said University in 2010. So the researchers focused on comparison between the nursing students of two universities have teaching the courses with the same manner by using PBL approach and its impact on their nursing students in acquired 21st-century skills.

**Aim:**

To investigate the impact of problem based learning approach on acquiring 21century skills among nursing students' .

**SUBJECTS AND METHODS**

**Research design**

Descriptive comparative research design was used in this study.

**Study Setting:**

This study was carried out in two Nursing colleges at two countries; in Egypt in Port-said university and Al Qassim University in Kingdom of Saudi Arabia

**Target population**

The target populations were all students from one to fourth level in both universities as mentioned above.

**Subjects:**

All available nursing students in nursing college in academic years from 2009 until 2013 in both Al Qassim and Port- said universities because nursing college in Al Qassim university was opened newly at 2009- 2010. In year 2013 total Saudi number were 80 students in four levels and Egyptian number were 141 students.

**Tools for Data Collection:**

Data was collected by using tool adopted from **Alswaitry et al , 2010** , it was contains 38 items divided into 6 main parts for measuring the students ability for acquiring 21 century skills as communication ability , decision making ability , problem solving & critical thinking , team work ability , responsibility ability , self esteem & satisfaction as follows:

1. communication ability skills : Was Contains 6 choice items
2. Decision making skills :It includes 8 choice items for measure students ability for descion making and critical thinking
3. Problem solving & Critical thinking skills : This part was includes 6 choice items
4. Team work / cooperation skills : It includes 6 choice items
5. responsibility skills: It includes 6 choice items
6. Self-awareness / self-concept/self-esteem: It includes 6 choice items

**Scoring system:**

All parts of this study tool used based on **Alswaitry et al 2010** through using Likert Scale ranged from 5 to 1 distributed as always, usually, sometimes, rarely and never respectively . A total score of 60 % and more was considered adequate skills, while total score below 60% was considered inadequate.

**Ethical considerations:**

Ethical approval was obtained from the administrative authorities of the college of nursing, from which participants were voluntarily recruited in Al Qassim and Port Said University, in KSA and Egypt consecutively. The aim of the study was explained to the students and participation was entirely voluntary. Students had an opportunity to determine their willingness or refusal to participate in the study. A signed informed consent was obtained from each student before data collection and confidentiality was ensured through the use of code numbers. Students were apprised that all findings would be reported as group results and would be submitted for publication.

**Pilot Study:**

Pilot study was carried out after the development of the tools on 10% of the students to test applicability of the tools then necessary modifications were done according to the finding results of the pilot study and expertise opinions. Otherwise, these students were then excluded from the sample of research work to assure the stability of answers.

**Procedure:**

Each student was individually filled the questionnaire; the questionnaire was collected from December 2009 until December 2013 according to availability of students attendance and they free time for data collection in both universities, purpose of the study was explained prior to get the questionnaire sheet, and it distributed to be answered within (20 - 30 minutes) then collected.

**Data Analysis Plan:**

Data were revised, coded, entered, analyzed and tabulated using SPSS version 16. Both descriptive statistics (frequency, percentage, mean and standard deviation) and inferential statistics (Pearson correlation test, chi-square test, independent t test were used according to type of variables.

**Limitation of study**

Data collection was take long time for collection than the researcher's plans and prediction because of political troubles that faced many universities in Egypt in the time of data collection which interfered with good chance to sit with students and found them. In addition to , newly nursing college in Al Qassim University forced the researchers to wait four years until they complete numbers of students from four years.

**Results:**

**Table 1.** Shows that number and percent of Saudi and Egyptian students in four levels was revealed a highly statistically differences among both group regarding class year. (p-value 000 ).

**Table 2.** Shows that (92.5%) Saudi and (93.6%) Egyptian students have adequate communication skills with statistically significant differences in the communication items related to interest in listening and listen to the other parties through dialogue, adhere to execution of the instructions by priority and use verbal and non-verbal ways of communications with (p-value 0.019,0.024 , 0.001) respectively.

**Table 3.** Illustrates that (96.2%) Saudi and (95%) Egyptian students have adequate decision making skills with statistically significant differences in the items related to have the ability to limit the alternatives available , Gather adequate information's which help in choice the solution, Cannot issued a ruling on the decision taken and Can monitor and follow up the decision taken and implemented with (p-value .001, 0.020, 0.005 and 0.002) respectively, also there are statistically significant differences between Saudi & Egyptian Students regarding total decision making (p-value 002 ).

**Table 4.** Shows that (89.4%) Egyptian students have adequate problem solving and critical thinking skills compared by Saudi students (77.5%), with highly statistically significant difference only in item related to discovered defects in my performance cannot my collogues detected it (p-value.000). Also the table shows that mean of Port- Said students more than mean of Al Qassim students regarding problem solving and critical thinking skills with statistically significant differences.

**Table 5.** Demonstrates that (100%) Saudi and (95.7%) Egyptian students have adequate team work and cooperation skills with highly statistically significant difference in item related to Spirit of belonging to the group , Initiative in providing aid to others ,Be sure to build bonds of trust with members of the group and Negotiate with others about the different positions (p-value 0.023,0.035,0.000 and 0.010) respectively. Also, it shows that the mean of Al Qassim students more than mean of Port -Said students regarding team work and cooperation skills. With statistically significant differences (p-value 0.014).

**Table 6.** Illustrates that (100%) Saudi and (93.6%) Egyptian students have adequate responsibility skills with highly statistically significant difference in all items related to responsibility skills except the item related to reflect a positive image of self in the course of discussion and dialogue. Also, the table shows that the mean of Al Qassim students more than mean of Port -Said students regarding responsibility skills with statistically significant differences.

**Table 7.** Shows that (92.5%) Saudi and (89.4%) Egyptian students have adequate Self-awareness, self-concept and self-esteem with highly statistically significant difference only in item related to express a high degree of enthusiasm for their performance at the newly learned skills (p-value.000). Also the table shows that mean of Al Qassim students more than mean of Port-Said students regarding Self-awareness, self-concept and self-esteem.

**Table (1) : Number and percent distribution of nursing students in both Al Qassim and Port – Said Universities according to their class year**

Class year	university				$\chi^2$	P-value
	KSA (Al Qassim)		Egypt (Port Said)			
	No	%	No	%		
Level 1	30	37.5%	23	16.3%	23.956	.000**
Level 2	23	28.8%	27	19.1%		
Level 3	20	25.0%	47	33.3%		
Level 4	7	8.8%	44	31.2%		
<b>Total</b>	<b>80</b>	<b>100.0%</b>	<b>141</b>	<b>100.0%</b>		

**Table (2): Nursing students perception about 21 century skills and their experience regarding Communication skills**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No(80)	%	No(141)	%		
interest in listening and listen to the other parties through dialogue	Al Qassim	74	92.5%	6	7.5%	5.988	0.019*
	Port Said	113	80.1%	28	19.9%		
keep focus on the length of the listening	Al Qassim	51	63.8%	29	36.2%	0.192	0.662
	Port Said	94	66.7%	47	33.3%		
Can interpret non-verbal signals	Al Qassim	57	71.2%	23	28.8%	1.262	0.300
	Port Said	90	63.8%	51	36.2%		
Adhere to execution of the instructions by priority	Al Qassim	47	58.8%	33	41.2%	5.313	0.024*
	Port Said	104	73.8%	37	26.2%		
use verbal and non-verbal	Al Qassim	45	56.2%	35	43.8%	11.543	0.001*
	Port Said	110	78.0%	31	22.0%		
Communicate with others and confident	Al Qassim	64	80.0%	16	20.0%	1.091	0.329
	Port Said	104	73.8%	37	26.2%		
<b>Total communication</b>	Al Qassim	74	92.5%	6	7.5%	1.091	0.329
	Port Said	132	93.6%	9	6.4%		
<b>Mean&amp; SD of Total communication</b>	Al Qassim	1.9250±.26505				t -.316-	.752
	Port Said	1.9362±.24532					

**Table (3): Nursing students perception about 21 century skills and their experience regarding Decision making skills**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No	%	No	%		
Can identify situations and Gathering the information that will help in the decision-making	<b>Al Qassim</b>	63	78.8%	17	21.2%	.257	.602
	<b>Port Said</b>	115	81.6%	26	18.4%		
Have the ability to limit the alternatives available	<b>Al Qassim</b>	75	93.8%	5	6.2%	11.207	.001*
	<b>Port Said</b>	107	75.9%	34	24.1%		
Gather adequate information's which help in choice the solution	<b>Al Qassim</b>	42	52.5%	38	47.5%	5.807	.020 *
	<b>Port Said</b>	97	68.8%	44	31.2%		
Have the ability to compare and evaluate alternative solutions	<b>Al Qassim</b>	57	71.2%	23	28.8%	1.039	.372
	<b>Port Said</b>	91	64.5%	50	35.5%		
Have the ability to assess each alternative choice separately	<b>Al Qassim</b>	47	58.8%	33	41.2%	3.395	.076
	<b>Port Said</b>	100	70.9%	41	29.1%		
Have the ability to choose the best alternative	<b>Al Qassim</b>	67	83.8%	13	16.2%	.618	.479
	<b>Port Said</b>	112	79.4%	29	20.6%		
Cannot issued a ruling on the decision taken	<b>Al Qassim</b>	70	87.5%	10	12.5%	8.477	.005 *
	<b>Port Said</b>	99	70.2%	42	29.8%		
Can monitor and follow up the decision taken and implemented	<b>Al Qassim</b>	70	87.5%	10	12.5%	9.672	.002*
	<b>Port Said</b>	97	68.8%	44	31.2%		
<b>Total Decisionmaking</b>	<b>Al Qassim</b>	77	96.2%	3	3.8%	9.672	.002*
	<b>Port Said</b>	134	95.0%	7	5.0%		
<b>Mean&amp; SD of Total Decisionmaking</b>	<b>Al Qassim</b>	1.9625±.19118				<b>t.416</b>	<b>.678</b>
	<b>Port Said</b>	1.9504±.21799				<b>t.431</b>	<b>.667</b>

**Table (4): Nursing students perception about 21 century skills and their experience Problem solving and critical thinking skills**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No	%	No	%		
Discovered defects in my performance cannot my collogues detected it	<b>Al Qassim</b>	28	35.0%	52	65.0%	20.697	.000**
	<b>Port Said</b>	94	66.7%	47	33.3%		
Have the ability to move rapidly from one idea to another	<b>Al Qassim</b>	39	48.8%	41	51.2%	1.087	.328
	<b>Port Said</b>	79	56.0%	62	44.0%		
Obey with the idea or problem to the point that I feel it is a part of me	<b>Al Qassim</b>	51	63.8%	29	36.2%	1.213	.294
	<b>Port Said</b>	100	70.9%	41	29.1%		
Can follow the big idea in solution	<b>Al Qassim</b>	47	58.8%	33	41.2%	1.385	.248
	<b>Port Said</b>	94	66.7%	47	33.3%		
Have the ability to think independently	<b>Al Qassim</b>	64	80.0%	16	20.0%	1.602	.257
	<b>Port Said</b>	102	72.3%	39	27.7%		
Have the ability to provide critical ideas and helpful to others	<b>Al Qassim</b>	54	67.5%	26	32.5%	2.158	.156
	<b>Port Said</b>	108	76.6%	33	23.4%		

<b>Total Problem solving and critical thinking skills</b>	<b>Al Qassim</b>	62	77.5%	18	22.5%	2.158	.156
	<b>Port Said</b>	126	89.4%	15	10.6%		
<b>Mean&amp; SD of total Problem solving and critical thinking skills</b>	<b>Al Qassim</b>	1.7750±.42022				<b>t</b> -2.398-	.017*
	<b>Port Said</b>	1.8936±.30943					

**Table (5) : Nursing students perception about 21 century skills and their experience regarding team work and cooperation skills**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No	%	No	%		
Respect other people's ideas	<b>Al Qassim</b>	72	90.0%	8	10.0%	2.401	.169
	<b>Port Said</b>	116	82.3%	25	17.7%		
Spirit of belonging to the group	<b>Al Qassim</b>	73	91.2%	7	8.8%	5.227	.023 *
	<b>Port Said</b>	112	79.4%	29	20.6%		
Older interest group on the individual Departments	<b>Al Qassim</b>	60	75.0%	20	25.0%	.794	.399
	<b>Port Said</b>	113	80.1%	28	19.9%		
Initiative in providing aid to others	<b>Al Qassim</b>	75	93.8%	5	6.2%	4.670	.035 *
	<b>Port Said</b>	118	83.7%	23	16.3%		
Be sure to build bonds of trust with members of the group 5	<b>Al Qassim</b>	80	100.0%	0	.0%	16.719	.000***
	<b>Port Said</b>	115	81.6%	26	18.4%		
Negotiate with others about the different positions	<b>Al Qassim</b>	55	68.8%	25	31.2%	7.463	.010 *
	<b>Port Said</b>	119	84.4%	22	15.6%		
<b>Total Teamwork</b>	<b>Al Qassim</b>	80	100.0%	0	.0%	7.463	.010 *
	<b>Port Said</b>	135	95.7%	6	4.3%		
<b>Mean&amp; SD of total Teamwork</b>	<b>Al Qassim</b>	2.0000±.00000				<b>t</b> 1.877	.062
	<b>Port Said</b>	1.9574±.20257					

**Table (6) : Nursing students perception about 21 century skills and their experience regarding responsibility skills**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No	%	No	%		
Behave properly and responsible	<b>Al Qassim</b>	77	96.2%	3	3.8%	11.658	.001 *
	<b>Port Said</b>	112	79.4%	29	20.6%		
Reflect a positive image of self in the course of discussion and dialogue	<b>Al Qassim</b>	69	86.2%	11	13.8%	3.797	.059
	<b>Port Said</b>	106	75.2%	35	24.8%		
Realized the importance of fulfilling the obligations required of students	<b>Al Qassim</b>	78	97.5%	2	2.5%	20.584	.000**
	<b>Port Said</b>	103	73.0%	38	27.0%		
Can identify my interests	<b>Al Qassim</b>	76	95.0%	4	5.0%	9.100	.002*
	<b>Port Said</b>	113	80.1%	28	19.9%		
Can make a judgment on performance and honest performance of others	<b>Al Qassim</b>	75	93.8%	5	6.2%	9.268	.002*
	<b>Port Said</b>	110	78.0%	31	22.0%		
Distinguish between right and wrong	<b>Al Qassim</b>	77	96.2%	3	3.8%	13.744	.000**
	<b>Port Said</b>	109	77.3%	32	22.7%		
<b>Total Responsibility</b>	<b>Al Qassim</b>	80	100.0%	0	.0%	13.744	.000**
	<b>Port Said</b>	132	93.6%	9	6.4%		
<b>Mean&amp; SD of total Responsibility</b>	<b>Al Qassim</b>	2.0000±.00000				<b>t</b> 2.325	.021*
	<b>Port Said</b>	1.9362±.24532					

**Table (7): Nursing students perception about 21 century skills and their experience regarding Self-awareness / self-concept and self esteem**

Items		Adequate		Inadequate		$\chi^2$	P-value
		No	%	No	%		
Accept without critical praise and praise others	Al Qassim	66	82.5%	14	17.5%	.633	.489
	Port Said	110	78.0%	31	22.0%		
Accept positive and constructively criticize others	Al Qassim	68	85.0%	12	15.0%	1.306	.288
	Port Said	111	78.7%	30	21.3%		
Act more confident while doing my duties	Al Qassim	66	82.5%	14	17.5%	.306	.724
	Port Said	112	79.4%	29	20.6%		
Expressed a high degree of enthusiasm for performance at the newly learned skills	Al Qassim	77	96.2%	3	3.8%	15.184	.000**
	Port Said	107	75.9%	34	24.1%		
Feel entrepreneur and the oldest on the performance of a skill I do not know in advance	Al Qassim	51	63.8%	29	36.2%	2.441	.128
	Port Said	104	73.8%	37	26.2%		
Speak clearly and openly with others	Al Qassim	62	77.5%	18	22.5%	.382	.628
	Port Said	104	73.8%	37	26.2%		
<b>Total Self-awareness / self-concept and self esteem</b>	Al Qassim	74	92.5%	6	.628	.382	.628
	Port Said	126	89.4%	15	10.6%		
<b>Mean&amp; SD of Total Self-awareness / self-concept and self esteem</b>	Al Qassim	<b>1.9250±.26505</b>				<b>t.762</b>	<b>.447</b>
	Port Said	<b>1.8936±.30943</b>					

## Discussion:

The aim of the present study was to investigate the impact of using problem based learning on acquired 21 century skills among nursing students in both Al Qassim University and Port-Said University. **National Academy of Sciences (2011)** reported that in the 21st century, the health challenges facing the nation have shifted dramatically. The ways in which nurses were educated during the 20th century are no longer adequate for dealing with the realities of health care in the 21st century. As patient needs and care environments have become more complex, nurses need to attain requisite competencies to deliver high-quality care. These competencies include leadership, health policy, system improvement, research and evidence-based practice, and teamwork and collaboration, as well as competency in specific content areas such as community and public health and geriatrics. Nurses also are being called upon to fill expanding roles and to master technological tools and information management systems while collaborating and coordinating care across teams of health professionals. To respond to these increasing demands, the Institute of Medicine (IOM) committee calls for nurses to achieve higher levels of education and suggests that they be educated in new ways that better prepare them to meet the needs of the population.

Concerning communication skills, the current study revealed that both the studied groups have adequate communication skills with statistically significant differences in the communication items related to interest in listening and listen to the other parties through dialogue, adhere to execution of the instructions by priority and use verbal and non-verbal ways of communications. In the same context some research suggests that most of communication is nonverbal. Listening is an important aspect of nonverbal communication. Acquiring effective listening skills is an "active" process that involves focusing on the speaker, questioning him or her, validating what he or she has said, and allowing time to process the information given. (Orcajada and Lourdes, 2005 )

**Wood, (2011)** mentioned that the Intelligent Nurse starting with the basic skill of communication and explores the some of the pitfalls that affect both verbal and non-verbal communication. Many patient safety issues are directly related to how we communicate. Often, the overwhelming portion of our communication with patient and family are non-verbal. Thus, knowledge of how this interaction occurs, within the realm of emotional and social intelligence, will lead to higher patient satisfaction.

Today's technology provides the ability for students with diverse learning styles to engage with ideas in ways not previously possible. Students can be exposed to rich visuals and audio to supplement concepts on printed pages. At the same time, students are increasingly expected to express their understanding using images, video, and animation in addition to plain text. This means that multimedia applications once reserved for a few students taking video or design classes are increasingly a part of all classrooms. Educators must find ways to incorporate multimedia technologies into everyday activities, and help students to explore and master new ways to communicate what they are learning. (**Regan , 2008**)

Thus, teaching and learning are mostly supported by digital material and electronic communication. At present, Web-based learning (WBL), problem-based learning (PBL), and collaborative learning are the most powerful educational options in higher education. New teaching methods and especially electronic learning is on the top of the educational curriculums of all countries and mainly the advanced countries. (**Mosalanejad et al , 2014** ).

In USA, **Khalaf et al , 2013** reported that their studied Students had indicated that good communication and interaction between groups of friends is the most important factor that can promote their learning in PBL. Interaction with a group of friends is important in PBL because students have to turn and share information while they try to solve a given problem. So indirectly PBL can implement and enhance good communication skills among students. This finding is supported by Barrows and Tamblyn (1980) which states one of the main objectives in PBL is that students will be able to enhance their communication skills.

In relation to decision making skills, the present finding revealed that the studied groups have adequate decision making skills with statistically significant differences in the items related to have the ability to limit the alternatives choices , gather adequate information's which help in choice the solution, Cannot issued a ruling on the decision taken and can monitor and follow up the decision taken and implemented it. These finding goes in the same way with **Magno et al ,2005** who necessitate on that students who undergo PBL directly benefit from the experience by achieving increased problem solving ability, critical thinking in research, resource management skills , social skills and communication. Furthermore, according to the Buck Institute for Education (2002) the type of learning environment provided by project-based learning enhances a student's quality of learning through contexts where students acquire complex processing skills such as planning, organizing and communicating. In turn, the students attain a higher level of cognitive development ability by means of involvement in complex problems.

**Bell ( 2010)** added that the active learning process of PBL takes students' various learning styles and preferences into account. A student who thinks in more of an analytic, mathematical way may elect to create a timeline of events or graph findings to present to his or her audience .In addition to , Students may select their preferred learning environment they are empowered to make their own learning decisions and they will reflect on these choices to ensure they are making the best decisions possible. On the other hands , the opportunity to make mistakes is part of the learning process when we implement PBL approach , the tutor allow students to discover who they areas learners. They become able to make better choices, whether relating to process, environment, or outcome, which enables them to become more independent and responsible for their own learning.

Concerning Problem solving skills, the present study revealed that Egyptian students have adequate problem solving and critical thinking skills compared to Saudi students with a highly statistically significant difference were found in items related to students can discovered any defects in their performance cannot they collogues detected it. In these concern, many researches as **Magno et al ,2005** supported this finding and highlighted on that there is evidence derived from both students and teachers in that PBL is a more popular method of instruction than traditional methods. Students and teachers both believe that Project Based Learning is beneficial and effective as an instructional method. On the part of the teachers, PBL enhances professionalism and collaboration while on the part of students this kind of learning environment increases attendance, self-reliance and improves their attitudes. In fact, PBL has been gaining attention for its contribution in the improvement of student learning, student engagement

becomes a meaningful representation of student performance, reflecting the type of quality education an institution has provided

Critical thinking in nursing is the ability of nurses to use analysis, questioning, interpretation, and reflection to resolve patient care issues. Also, critical thinking and learning are interrelated. (**Özkahraman , 2011**) . In this regard, **Hammond & Adamson, 2010** recommended that students need to be able to find, evaluate, synthesize, and use knowledge in new contexts, frame and solve non-routine problems, and produce solutions. It also requires students to acquire well-developed thinking, problem solving, design, and communication skills. These are the so-called “21st century skills” reformers around the world have been urging schools to pursue for decades skills that are increasingly in demand in a complex, technologically connected, and fast changing world. In contrast , **Bellanca and Brandt , 2010** stated that many critics oppose the idea of teaching 21st century skills on the grounds that emphasizing skills such as critical thinking and problem solving will erode the teaching of important content.

Furthermore, the 21st century skills are not really different. We have always wanted students to be creative thinkers and problem solvers who have the skills necessary to function effectively in society and in the workplace. However, Engaging students in solving complex problems that require higher order thinking and application of content and that result in new perspectives and solutions to problems Providing opportunities for students to work collaborative as they gather information, solve problems, share ideas, and generate new ideas. (**Beers, 2011**)

Additionally, the study reflected that Saudi and Egyptian students have adequate team work and cooperation skills with a highly statistically significant difference in item related to Spirit of belonging to the group, Initiative in providing aid to others, be sure to build bonds of trust with members of the group and negotiate with others about the different positions. These findings supported with **Conneely et al , 2013** in Ireland they reported that students enjoyed working in teams and learning from their peers. Learning in this way was described as “fun”. This idea cluster with the need for students to improve their own communication and presentation skills featured prominently in the data as did learning how to work in a team.

From another point of view, **Bell (2010)** added that teaching students active listening skills enhances collaborative ability as well as creativity. Students learn the fundamental skills of productive communication, respect for others, and teamwork while generating ideas together. Negotiating how to collectively solve a problem is also part of PBL. Also, the students do a self-evaluation. They evaluate not only their learning, but also the success of their social interactions. They reflect on their communication skills, if they felt they listened well to other students’ ideas, and if they believed their own opinions were heard.

In this concern, **Keeling (2008)** reported that teamwork and PBL strategies are often implemented together. Advocates of team-based learning similarly suggest that student learning is enhanced and deepened through sustained collaborative interactions with peers, often while engaged in solving a research problem. Team-based, active learning facilitates “learner empowerment, in which encouragement is given to students to take responsibility for their own learning outcomes, ”students identified interpersonal interaction and sharing as the strongest elements of the course. “The number of ideas and the group collaboration helps spark better ideas and opens student's mind to a different perspective students identified trust-building, intellectual compromise and personal support as key elements of positive group interactions

Likewise , the study found that Saudi and Egyptian nursing students have adequate responsibility skills with highly statistically significant difference in all items related to responsibility skills except the item related to reflect a positive image of self in the course of discussion and dialogue. This finding supported with **Mosalanejad et al , 2014** who clarified that one of the most important challenges of education in the twenty-first century is how to train students in having necessary readiness for confronting the changing society and complexities of the information explosion age. In addition, the professional world asks the universities to provide formative opportunities that train students to fulfill their roles as working professionals. While, **Bartels 2005** highlighted on that the current demand for nurses to have more knowledge, education, and skills. Also, **Beers(2011)** reported that developing life and career skills by creating opportunities for students to become self-directed learners who take responsibility for their own learning and who learn how to work effectively with others.

Moreover, the finding indicated that the studied groups have adequate Self-awareness, self-concept and self-esteem with a highly statistically significant difference only in item related to express a high degree of enthusiasm

for their performance at the newly learned skills. **Trilling and Fadel , 2009** reported that The 21st century challenge for each of us is to build and maintain our own identity from our given traditions and from the wide variety of traditions all around us. At the same time we must all learn to apply tolerance and compassion for the different identities and values of others. With the growing diversity of global traditions and values that now surrounds us, the challenge to maintaining social harmony is great, but the opportunities for richer, more creative, and vibrant communities are even greater.

Additionally, **Bell (2010)** highlighted on that learning responsibility, independence, and discipline are three outcomes of PBL. Which, the organizational blueprint that let students have designed for themselves, guides them and allows them to stay focused and on-task through encourage them to use their work time effectively and stay focused and on-task to succeed. Goal setting helps students learn to manage their own time. Students learn accountability with PBL through the daily goal setting, as well as through expectations of their peers. They can be incredibly resourceful when time is of the essence. Accountability to peers often has greater consequences and provides more motivation for students than if they were only responsible to the teacher.

**(Huang, 2005)** indicated that Problem-based learning (PBL) has been proved to be effective in building the necessary skills and Personal qualities that employers are looking for. In study of Chinese international students' perceptions of their PBL experience in tourism-related courses at Universities in the UK, the findings suggested that the students found the PBL more interactive than their old learning style, and allowed them to learn on their own.

Finally , **Ledward, and Hirata , 2011** recommended that for nearly a decade, 21st Century Skills refer to content knowledge, literacy, and proficiencies that prepare individuals to meet the challenges and opportunities of today's world. Now more than ever, it is essential for individuals to access, synthesize, and communicate information, to work collaboratively across differences to solve complex problems, and to create new knowledge through the innovative use of multiple technologies.

## Conclusion

The Problem based learning approach has the greatest impact on students to acquiring the most of 21 century skills in both Al Qassim & Port- Said Nursing college.

## Recommendations:

Learning environments that actively engage students in the investigation of information and the application of knowledge will promote students' acquiring 21 century skills required as problem solving, critical thinking , decision making , responsibility , team work and cooperation , self awareness and self esteem skills. However, as with any skill, PBL Approach requires training, practice, and patience by encouraging students throughout the process and modeling thinking behaviors. Hence, students' 21 century skills can improve.

PBL approach has great effect on educate students to be able to solve complex problems and practices, the assessment of the application of knowledge when solving problems is at the heart of the matter in acquiring 21 century skills . Therefore, this approach recommended for application in teaching student nurses.

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