

Effectiveness of Portfolio as Learning and Assessment Tool in Nursing Education: Perspectives of Pre-registered Nursing Students

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Abstract

*Using of a portfolio in nursing education has risen in the recent years. It was found to develop critically reflective, lifelong learners, demonstrate their competencies to safe practices, and encourage personal and professional development. Portfolios are used as a learning and assessment tool in clinical placements. **Objective:** Determine the pre-registration nursing students' perceptions about the effectiveness of using a portfolio (paper-based portfolio) as a learning and assessment tool. **Setting:** The study was carried out in the nursing college at Abdulrahman Bin Faisal University (Dammam, Previously) in the Kingdom of Saudi Arabia. **Subjects:** All female students enrolled in the second, third and fourth-year who agreed to participate in the study were recruited. **Tool:** A self-administered questionnaire using paper and pencil was developed by the researchers based on a literature review. **Results:** The main finding of the current study revealed there was negative perceptions and attitudes of the students about using portfolios as an assessment and learning tool. Most of the students (84%) found that the portfolio was time-consuming and had many worked papers. **Conclusion:** Negative attitudes and perceptions about using of portfolio were revealed by the majority of the students. **Recommendations:** There should be clear guidelines and support for the use of portfolio in clinical training. Designed of portfolio should be clear, relevant and use friendly for both students and nurse educators.*

Keywords: Building of Portfolio; Students' Perspective; Nursing Education; Assessment and Learning methods.

Introduction

The word "portfolio" is derived from the Latin "portare," which means "to carry," and "foglio," which means "leaf or sheet" and it is a collection of proof of both the process and the product of learning that assures the achievement and implies the personal and professional development⁽¹⁻³⁾. Portfolios have a growing importance in nursing education as the profession seeks innovative teaching-learning-assessment methods, which promote students' competency and autonomy as managers of their virtual learning environment. It's used to boost students' ability to become lifelong learners by stimulating and monitoring their professional competence development. In

medical education, a portfolio is progressively being used to stimulate reflection among students. A portfolio is a type of learning and assessment tool that contains samples of students' work and information about their progress over time. Students begin to identify the strengths and weaknesses of their work by reflecting on their learning (self-assessment). These flaws then become targets for improvement⁽⁴⁻⁸⁾.

A portfolio is frequently used in nursing as a formative and summative method for evaluating nursing students and assessing students' ongoing personal and professional development. Whether paper-based or electronic, portfolios allow student nurses to keep track of their skills, accomplishments, experience, professional development, and lifelong learning. In the

portfolio, nursing students can demonstrate their core clinical assessments, tutorials, records of clinical education hours, accomplishments, and progress reports commented on by clinical instructors and preceptors at the clinical placement area, where they were assigned and trained during the academic period. They can also keep track of their learning activities in the clinical skills laboratories and hospitals and any incidents during the course. Students in nursing can also reflect by writing down their thoughts and observations about their experiences and evidence⁽⁹⁻¹²⁾.

Significance of the Study:

The study may pave the way for faculty members in the Universities of Dammam to explore the importance of using the portfolio to teach, and evaluate the students. Therefore, educators need a better understanding of undergraduate nursing students' perceptions towards using the portfolio as a method that enhances their learning and as a tool for assessing their clinical competence. The findings of this study can be used to make changes to the nursing curriculum and a starting point for future research. Students will benefit from this study because they will be able to identify their weaknesses and strengths through continuous reflection. Nursing students can use self-assessment to figure out where they need to improve.

Aim of the Study

The study aims to determine the pre-registration nursing students' perceptions about the effectiveness of using a portfolio (paper-based portfolio) as a learning and assessment tool.

Research Questions

1. What are the perceptions of pre-registration nursing students towards the experience of building a portfolio?
2. What are the perceptions of pre-registration nursing students towards

using a portfolio as a method of assessment and learning?

3. Are there any significant differences in perceptions among pre-registration nursing students towards using portfolios about the level of their academic degree?

Materials and Method

Materials

Design: The pre-registration nursing students' perceptions of the portfolio as a tool for clinical learning and assessment were elicited using a descriptive-explorative research design.

Setting: The research was carried out in the nursing college females' section at Abdulrahman Bin Fasiyal University (formerly Dammam) in the Kingdom of Saudi Arabia.

Subjects: The current study was conducted to reflect on developing and implementing a portfolio of undergraduate nursing students in the College of Nursing at the University of Dammam. The study was conducted between December 2014 to January 2015. All female students from three academic years (second, third and fourth), each academic year consists of 2 levels (6 levels) of the undergraduate nursing program involving 39 students from the fourth level, 91 students from the 6th level, and 114 students from 8th level.

Tool: The researchers conducted a thorough literature review to create a questionnaire to assess undergraduate nursing students' attitudes toward using a portfolio in clinical practice as a learning and assessment tool^(1,16-19). It comprises two sections:

Section one: "Students' Demographics & Education Details" such as the year of the study, educational level, the course title, previous experience in portfolio preparation, number of courses with portfolio preparation, an average of daily hours for portfolio preparation, and portfolio preparation cost (SR).

Section two: "Identified Three Relevant Domains Related to the Portfolio" consists of three specific domains related to the portfolio. This section was comprised of twenty - three statements. 5 – Point Likert Scale was used to measure the student agreement with the statements. The Five-Point Likert Scale consisted of the following components: Strongly Agree 5, Agree 4, Neutral 3, Disagree 2, and Strongly Disagree 1. This category is distributed to the identified three–relevant domains relating to the portfolio, which included:

- Domain I: "Student perceptions towards the building of a portfolio" Eight statements were asked in this domain to determine the students' perceptions towards the building of the portfolio.
- Domain II: "Student attitudes toward using a portfolio as a tool of assessment" Six statements were asked in this domain to determine the students' perceptions of using a portfolio as a tool of assessment.
- Domain III: "Student attitudes towards using the portfolio tool of learning" Nine statements were asked in this domain to determine the students' perceptions towards using a Portfolio as a learning tool.

Method

- An official letter was submitted to the Dean of the College and the Vice – Dean of the Academic and Students' Affairs to obtain their approval to carry out the study.
- Meetings were held with the courses' coordinators to clarify the study's purpose and gain cooperation and support during data collection.
- The researchers developed the tool after reviewing the recent relevant literature. The validity and reliability of the tool were tested. Face and content validity were tested by a group of academicians (two lectures, two assistant professors, and one

associate professor). Internal consistency (Cronbach's Alpha) was used to determine reliability, with values of 0.73, 0.89, and 0.77 for the three parts of the questionnaire. A ten percent sample of students was used in a pilot study (these students were not included in the actual study) to test the clarity and applicability of the questionnaire. The researchers collected data during the period from December 2014 to January 2015 (2 months).

Ethical considerations:

Ethical approval was granted by the University's Deanship of Scientific Research/Institutional Review Board. Permission to conduct the study was obtained from the college's responsible authorities, including the courses' coordinators of the academic levels. Written consent was obtained from the participants, and they were informed that their participation is voluntary and they can withdraw at any stage of the study without any academic penalty. All undergraduate nursing students who accepted to take part in the study were included. Confidentiality of the data was ascertained.

Statistical Analysis

Data were coded, entered, & analyzed using the statistical package SPSS version 19. Data were summarized using mean & standard deviation for quantitative variables & percentage for qualitative variables. A comparison between groups was made using the Chi-square test for qualitative variables & independent sample t-test for quantitative variables. P-value < 0.05 will be considered statistically significant.

Results

Table (1) reveals the distribution of the study sample based on their educational characteristics. It was found that less than half (46.7%) of the studied sample of the female nursing students were in the 8th level of the 4th year, more than one third (37.3%)

were in the 6th level of the third year, and 16% were in the 4th level of the 2nd year. Most of the participated students (81.4%) stated previous experience in portfolio preparation. The number of courses with portfolio preparation ranged from zero to twelve, with a median of five courses. The average daily hours that the students spent in portfolio preparation were ranged from less than a quarter of an hour (0.2) to nine hours with a median of two hours. On the other hand, the students mentioned that the average weekly hours spent with the mentor guide were ranged from zero to six hours with a median of one hour. The cost in Saudi Ryales (SR) for portfolio preparation was ranged from ten to two hundred with a median of one hundred SR.

Table (2) and **(Figure 1)** show the distribution of nursing students based on their perceptions of the portfolio-building experience. It should be noted that most nursing students (84%) did agree that the portfolio contained many worked papers. The percentage was higher in the fourth and third years than in the second. Building a portfolio was incompatible with training time according to more than half of the participants (55%), and the percent was statistically significant increased with the year of graduation (25.6%, 49.4%, and 69.3% and (X2 & KW) $P < 0.001$). Less than half (44.3%) of the sample agreed that more information and instructions on the building portfolio were needed, with the percentage was the lowest in the third year (29.7%) compared to 44.7% in the fourth year, and 76.9% in the second year. These differences are statistically significant as (X2 & KW) $P < 0.001$. No statistically significant differences are present regarding the year of graduation and the other items of building a portfolio as (X2 & KW) $P > 0.05$. More than one-third (38.9%) of all students agreed that building a portfolio reflects personality development and self-dependency. Less than one-third (31.1% and 31.2%) of all students agreed that the portfolio is valuable and helpful. Only 27% of students agreed that portfolios give self-confidence. The

overall satisfaction of agreement by building a portfolio is encountered by 24.6%. The overall calculated satisfaction score was ranged from 1 (strongly disagree) to 4.2 (agree) with a median of 2.6. The median overall calculated satisfaction scores are statistically significant decrease with the year of graduation (2.7, 2.6, and 2.4 with the (X2 & KW) $P = 0.02$). During building a portfolio, 35.9% of the 2nd-year students mentioned the feeling of interest compared to 22% and 14.3% of students enrolled in the 3rd and 4th year, respectively. These differences are statistically significant as (X2 & KW) $P = 0.02$.

Table (3) and **(Figure 2)** reveal the percent distribution of nursing students' perceptions toward using a portfolio as a learning tool. It can be observed that more than a quarter (29.1% and 27.8%) of the studied sample agreed that a portfolio could be used for both self-dependence in learning and determine knowledge and practical defects, respectively. In the previously mentioned two items, the percent of the agreement was highest among 2nd-year students compared to those enrolled in 4th and 3rd years with no statistically significant differences. Less than one-fourth (23.8% and 20.9%) of the studied sample agreed that portfolios help in building knowledge and developing learning skills, respectively. The agreement percent was statistically significant highest among 2nd year students (33.3% for both items) compared to 20.8% of 3rd year and 22.8% of those in 4th year regarding building knowledge and compared to 22% for those in the 3rd year and 15.8% among 4th year students regarding developing learning skills. These differences are significant as (X2 & KW) $P = 0.005$ and 0.03 respectively. The overall satisfaction of agreement about using a portfolio in learning is encountered by 21.3% among all students. The agreement percent regarding the overall satisfaction was highest among the 2nd year compared to those enrolled in the 4th and 3rd year, with no statistically significant differences. The overall calculated satisfaction score was ranged

from 1 (strongly disagree) to 5 (strongly agree) with a median of 2.8. The median overall calculated satisfaction scores are statistically significant decrease with the year of graduation (3.2, 2.8, and 2.6 with the (X² & KW) P=0.03 figure 2). The feeling of interest regarding using the portfolio for learning was mentioned by 23.4% of the studied sample. The percent of interest was highest among 2nd-year students compared to those enrolled in the 3rd and 4th year. These differences were not statistically significant.

Table (4) and **(Figure 3)** show the percent distribution of female nursing students' perceptions of using a portfolio for assessment. Less than half of female nursing students (42.3 % and 42.2%, respectively) agreed that the practical exam was preferable to the paperwork of the portfolio, which reflects practical competency. There are no statistically significant differences concerning the educational years. About one-third (34.9%) of all students agreed that a portfolio measures educational skills development. The percent of the agreement was highest among 2nd-year students. The agreement percent of female nursing students regarding four items of using portfolio for assessment, namely; mentors' checkup, evaluation, criticism, and the preference of using a portfolio to measure practice development compared to the written exam are 30.3%, 16.4%, 27.4%, and 21.7% respectively. The percent of the agreement is statistically significantly higher among 2nd-year students as (X² & KW) P<0.05. The agreement percent regarding using portfolios to measure knowledge development and as a standard for evaluation is encountered among 29.1% and 21.7% of all students. There are no statistically significant differences regarding the graduation year. The overall satisfaction of agreement about using a portfolio in assessment is 19.3% among all students. The agreement percent regarding the overall satisfaction was highest among 2nd-year students compared to students enrolled in the 4th and 3rd years (35.9%, 18.5%, and

13.1%, respectively). These differences are statistically significant as (X² & KW) P<0.001. The overall calculated satisfaction score was ranged from 1 (strongly disagree) to 4.6 (agree) with a median of 2.8. The median overall calculated satisfaction scores are statistically significant decrease with the year of graduation (3.1, 2.9, and 2.6 with the (X² & KW) P=0.003).

Table (5) reveals the relationship between the overall portfolio building scores, using in learning and assessment, and the students' educational characteristics: previous experience of the portfolio and the number of courses, which were not statistically significant (X² & KW) P> 0.05. On the other hand, a fair negative correlation was found about the other students' characteristics. The correlation was statistically significant regarding portfolio building. It is used to assess the daily hours for portfolio preparation and the weekly hours spent with the instructor (X² & KW) P<0.05. The correlation is statistically significant regarding portfolio building and its use for learning and assessment concerning the portfolio preparation cost (X² & KW) P<0.05.

Discussion

The portfolio was recently incorporated into nursing education at Abdulrahman Bin Faisal University's college of nursing (Dammam, Previously). It was considered a new experience for clinical instructors and students. For this reason, the conduction of this study was preceded by the preparatory phase. A serial of condensed and specific workshops were conducted by the assessment and evaluation unit at the level of the university to provide an orientation and ensure a full understanding of the clinical instructors regarding all issues related to the portfolio, that included: why the adoption of a portfolio was important in nursing education, the steps of building or construction of the portfolio, the content of the portfolio, how could the instructor use a portfolio as learning and assessment tool in

the clinical nursing education and how could they give feedback and evaluate the portfolio. All of these instructional workshops were conducted for the students at the college level. Then implementation of the portfolio took place during the academic year of 2014 - 2015 (semesters 1 & 2), and any raised issue or problem was consulted and solved. By the end of the second semester, the purpose of this study was to find out how students felt about using a portfolio as a learning and assessment tool.

The current study's main finding revealed negative perceptions and attitudes toward building and using the portfolio as learning and an assessment development tool. Concerning the students' perceptions regarding their experience with the preparation or building of the portfolio, more than half of the students thought developing a portfolio did not reflect their personality development, self-dependency, and self-confidence. Besides, less than one-third of all students perceived that the portfolio is valuable and helpful. The overall satisfaction of the agreement by building a portfolio is encountered by about a quarter of the sample. This low satisfaction in the present study can be attributed to the statistically significant negative correlation between the perception about the building of portfolio and daily hours of its preparation, weekly hours spent with instructors, and its cost.

Concerning the students' perceptions regarding using the portfolio as a learning tool contributing to learning development, the current study revealed that slightly more than a quarter of the studied sample perceived that the portfolio could be used for self-dependence in learning and determining knowledge and practical defects, respectively. Moreover, less than one-quarter of the studied sample agreed that portfolios help in building knowledge and developing learning skills, respectively. Finally, nearly one-fifth of all students encountered the overall satisfaction of agreement about using portfolio learning

development. This low satisfaction in the present study can be attributed to the statistically significant negative correlation between the perception about using the portfolio for learning and its cost of preparation.

Concerning the students' perceptions regarding using the portfolio as an assessment tool, using a portfolio as an assessment tool might reflect practical competency according to less than half of nursing students. They favored the practical exam over the portfolio paperwork. Less than a quarter of the studied sample liked using a portfolio to measure practice development compared to the written exam. The overall satisfaction of agreement about using a portfolio in assessment is encountered by almost one-fifth of all students. This low satisfaction in the present study can be attributed to the statistically significant negative correlation between the perception about using the portfolio as an assessment tool and each of the daily hours of its preparation, weekly hours spent with instructors, and its cost.

Generally speaking, the present study revealed that the median calculated overall scores of the nursing students' perception regarding building the portfolio and its use as learning and assessment tools are statistically significant highest among those enrolled in the 2nd year than those in the 3rd and 4th year. This finding may be explained by the fact that younger students are more receptive to the new technique and teaching methods than the older ones who are accustomed to the old routine methods.

Analyzing the students' spoken words elicited during the data collection period can explain students' pessimistic perceptions and attitudes towards construction and the use of the portfolio. Portfolio building, they said, hampered clinical learning because of the excessive amount of paper evidence required. The process took a long time, and more information and instructions on building a portfolio were needed. Negative attitudes and variations among the

instructors and the courses make the students anxious and afraid. Also, the lack of motivation was another cause for students' negative perceptions regarding using a portfolio.

Many researchers around the world have reported the same results of the current study. In one study conducted by Mary Mitchell⁽¹⁸⁾, she studied the views of students and teachers on the use of portfolios as a learning and assessment tool. She found that a lot of students felt pessimistic about the use of portfolios. Problems were related to time consumption, lack of motivation, uncertainty about what was expected of them, difficulties in expressing personal thoughts and feelings, and the resulting anxiety. On the same line, Janet and Caroline⁽¹⁹⁾ found that the student's responses regarding the use of portfolios were negative. The majority of students mentioned that the portfolio did not motivate them to learn. The anxiety experienced by them could also harm motivation. This anxiety was related to the uncertainty of what was expected of them and the time-consuming nature of keeping a portfolio. In another study done by McMullan⁽²⁰⁾, he found that students had negative perceptions toward using a portfolio. Students reported that portfolios were time-consuming, making them very anxious. Besides, the students found portfolios were not useful in developing and assessing their learning and competence. A conflict exists when using portfolios for both learning and assessment.

Similarly, Williams et al.⁽²¹⁾ found significant discrepancies between lecturers and student nurses in their views on how portfolios are used. The value of portfolios becomes less efficient to student nurses towards the end of their training. He suggested that clinical instructors and mentors investigate and understand the portfolios' students' perceptions and why some nursing students consider them ineffective. Furthermore, Brennan and Lennie⁽²²⁾ examined students' impressions of the use and efficacy of portfolio-based

learning in the UK; they concluded that it took a long time to complete the portfolio since most students recognized the excessive amount of paperwork involved.

Likewise, Margery et al.⁽²³⁾, in their study, analyzed 'students' attitudes to the portfolio assessment process over time. The 'students' responses were compared over four years. They found that student perceptions toward the portfolio process were initially hostile, although they appreciated that instructors took time to become familiar with their work through reviewing their portfolios. 'Students' perceptions and attitudes became more positive through the four years as the process evolved. Although portfolio assessment was recognized as supporting student learning, portfolio building was perceived to interfere with clinical learning due to the excessive amounts of paper evidence required.

Many other studies owed the negative attitudes or perceptions of the medical students to the lack of adequate support from mentors. Further studies confirmed that mentoring by teachers, trainers, or educational supervisors made an essential contribution to the success of the portfolio⁽²⁴⁻²⁷⁾.

A note of importance that the results of portfolio applicability studies have not always been negative. In contrast to the findings of this study, several studies that have been addressed the same issue showed students' positive perceptions toward the use of a portfolio. The process of preparing portfolios revealed positive academic, professional, and effective outcomes. Students believed that using the portfolio enables them to focus and be on track academically and professionally. They favored using a portfolio as an assessment and viewed it as a method that will be useful when seeking a future career and employment. In one study done by Victoire and Lorraine⁽⁹⁾, They discovered that using a portfolio as a teaching and learning strategy was effective. The self-esteem, critical

thinking, and self-confidence of the participants in this study were bolstered and empowered by the skills, experience, and knowledge they gained. Self-directed learning was also aided by reflection.

Similarly, Salwa et al.⁽²⁸⁾ revealed that Student nurses stated that the portfolio process helped their learning since they took more responsibility for their learning. Additionally, they mentioned that the portfolio helped them understand the basic concepts, improve the student-teacher relationship, and added that portfolios are useful for their professional career development. Correspondingly, Cooke et al.⁽²⁹⁾ evaluated the portfolio's utility in enabling nursing students to learn how to initiate engagement with their registered nurses and develop their ability to learn as students. Overall, students said the portfolio was a helpful learning, assessment, and communication strategy because it showed them how to maximize their chances of meeting their learning objectives. Finally, Valizadeh et al.⁽³⁰⁾ conducted a quasi-experimental study at an Iranian nursing school to see how the portfolio affected clinical education and assessment. The portfolio significantly improved nursing students' cognitive learning, according to the findings.

Conclusion

Students' attitudes and perceptions towards the portfolio are negative. Students revealed different concerns, issues and problems about portfolios. These might be worthy of solving these problems. Portfolio could be very useful as a learning tool if both students and nursing educators have clear guidelines and support.

Recommendations

Based on the current study findings, the following recommendations are suggested:

- A portfolio could be an effective student-centered learning method if the students receive clear guidelines and comprehensive support. This recommendation can be accomplished if the portfolio is well designed in clear, relevant, and objective ways, not time-consuming with predetermined content, and linked with learning outcomes.
- Regular meetings and discussions with the students to know how and why they begin to see portfolios as more useful for their education and continual professional development.
- Students' activities are vital to the success of portfolio assessment and tutorial support that should aim to provide the students with a sense of experimentation and achievement.
- Electronic versions of the portfolio will encourage and facilitate the students' reflections that save time and decrease cost.
- Further research would help explore the instructors' perceptions toward using the portfolio as learning and an assessment method.

Table (1): Distribution of the Nursing Students according to Their Educational Characteristics

Characteristics of the Sample	Number	(%)
Academic Level: 244 (100.0)		
– Second Year	39.00	16.00
– Third Year	91.00	37.20
– Fourth Year	114.00	46.80
Past Experience in Preparation of Portfolio: 242(99.3)		
– Yes	197.00	81.40
– No	45.00	18.60
Number of Courses		
– Minimum-maximum	0-12	
– Mean \pm SD	5.2 \pm 2.3	
– Median (IQR)	5(3)	
Average Hours for Portfolio Preparation/Day		
– Minimum-maximum	0.2-9	
– Mean \pm SD	2.5 \pm 1.6	
– Median (IQR)	2(2)	
Average of Hours Spent with A Mentor Guide Per Week		
Minimum-maximum	0-6	
– Mean \pm SD	2.2 \pm 1.9	
– Median (IQR)	1(4)	
Cost of Portfolio Preparation (SR):	222	91.0
Minimum-maximum	10-200	
– Mean \pm SD	111.3 \pm 59.7	
– Median (IQR)	100(117.8)	

Table (2): Percent Distribution of the Nursing Students' Perceptions regarding the Experience of Building Portfolio

Statements	Second Year (39)			Third Year (91)			Fourth Year (114)			Total (244)			Test (χ^2 & KW) P
	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	
1. I need more information regarding building of a portfolio.	5.00	18.00	76.90	34.00	36.40	29.70	27.20	28.10	44.70	26.20	29.50	44.30	25.827* less than 0.001
2. The process of building a portfolio was valuable as a learning experience.	23.10	28.20	48.70	39.60	36.30	24.10	37.70	31.60	30.70	36.10	32.80	31.10	8.148 0.09
3. The paperwork required to build the portfolio was so much.	10.30	33.20	56.50	6.60	10.00	83.60	1.80	4.40	93.80	4.90	11.10	84.00	Not Valid
4. The process of building the portfolio was interfered with clinical learning.	38.50	35.90	25.60	18.70	31.90	49.40	11.40	19.30	69.30	18.40	26.60	55.00	26.910* less than 0.001
5. A portfolio truly helps to develop me personally and professionally throughout my placement.	28.20	35.90	35.90	28.60	34.10	37.30	36.00	22.80	41.20	32.00	29.10	38.90	4.317.0 0.4
6. The process of building a portfolio was helped me to build my self-confidence.	33.30	30.80	35.90	57.10	19.80	23.10	56.10	16.70	27.20	52.90	20.10	27.00	7.905.0 0.1
7. The experience of building a portfolio helps me to monitor the progress of my professional identity.	20.50	38.50	41.00	37.40	35.20	27.40	36.80	32.50	30.70	34.40	34.40	31.20	4.5650 0.3
8. Generally, I was satisfied with the process of building a portfolio.	23.10	38.50	38.40	47.30	31.90	20.80	44.70	32.50	22.80	42.20	33.20	24.60	8.2040 0.08
Minimum-maximum	1-4			1-4.2			1-4			1-4.2			
Mean \pm SD	2.8 \pm 0.8			2.6 \pm 0.7			2.5 \pm 0.8			2.6 \pm 0.7			7.559*
Median (IQR)	2.7(1.3)			2.6(1)			2.4(1.2)			2.6(1.1)			0.020
Feeling of satisfaction during the process of building a portfolio:	Students' Number (39)			Students' Number (91)			Students' Number (112)			Students' Number (242)			
Yes	35.900			22.000			14.300			20.700			8.396*
No	64.100			78.000			85.700			79.300			0.0200

 χ^2 : Chi-square Test KW: Kruskal Wallis

Table (3): Percent Distribution of the Nursing Students' Perceptions regarding the Using of a Portfolio as a Learning Tool

Statements	Second Year (39)			Third Year (91)			Fourth Year (114)			Total (244)			Test (X^2 & KW) P
	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	
1. A portfolio helps me to monitor the development of my learning skills over time.	33.30	35.90	30.80	46.20	28.60	25.20	47.40	23.70	28.90	44.70	27.50	27.80	3.3820 0.50
2. A portfolio helps me to develop my knowledge.	20.50	46.20	33.30	46.20	33.00	20.80	54.40	22.80	22.80	45.90	30.30	23.80	14.6870* 0.0050
3. A portfolio helps me to learn from my mistakes.	23.10	43.60	33.30	45.00	33.00	22.00	50.90	33.30	15.80	44.30	34.80	20.90	10.4770* 0.030
4. A portfolio would help me to enhance my lifelong learning.	15.40	30.80	53.80	26.40	25.30	48.30	38.60	21.10	40.30	30.30	24.20	45.50	8.5410 0.070
5. A portfolio would help me to build up my self-dependence.	28.20	35.90	35.90	34.10	38.50	27.50	47.40	24.60	28.00	39.30	31.60	29.10	7.8590 0.10
6. Generally, I was satisfied with portfolio as a learning tool.	25.60	43.60	30.80	39.60	41.80	18.60	50.00	29.80	20.20	42.20	36.50	21.30	8.9480 0.06
Minimum-maximum	1-4			1-5			1-5			1-5			7.0060* 0.03
Mean ± SD	3.2±0.8			2.9±1			2.5±1			2.8±1			
Median (IQR)	3.3(0.8)			2.9(1.2)			2.6(1.5)			2.8(1.6)			
Feeling of satisfaction during using a portfolio as a learning tool:	Students' Number (37)			Students' Number (86)			Students' Number (111)			Students' Number (234)			4.0540 0.10
Yes	40.50			27.90			85.70			23.40			
No	59.50			72.10						76.60			

X^2 : Chi-square Test KW: Kruskal Wallis

Table (4): Percent Distribution of the Nursing Students' Perceptions regarding the Experience of Using a Portfolio As Assessment Tool

Statements	Second Year (39)			Third Year (91)			Fourth Year (114)			Total (244)			Test (X^2 & KW) P
	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	Disagree	Neutral	Agree	
1. A portfolio gives me a true reflection about my clinical competence.	15.40	43.60	41.00	25.30	27.50	47.20	28.10	33.30	38.60	25.00	32.80	42.20	4.9710 0.30
2. A portfolio is a good way for faculty to assess my knowledge.	20.50	30.80	48.70	34.10	29.70	36.20	41.20	29.80	29.00	35.20	29.90	34.90	6.9520 0.10
3. Clinical instructors spend long time to check our activities included in the portfolio and this is highly appreciated.	20.50	46.20	33.30	34.10	34.10	31.80	43.90	30.70	25.40	36.50	34.40	29.10	7.5990 0.10
4. A portfolio becomes a valuable assessment tool in all courses and I am comfortable with this.	33.30	15.40	51.30	41.80	29.70	28.50	43.00	32.50	24.50	41.00	28.70	30.30	10.6710* 0.030
5. Guidelines used to assess the portfolio are unified and consistent among all the instructors.	30.80	46.20	23.00	40.70	35.20	24.10	52.60	28.10	19.30	44.70	33.60	21.70	7.1580 0.10
6. Clinical instructors provide me with constructive feedback and I respect this.	41.00	33.30	25.70	51.70	27.50	20.90	64.90	25.40	9.70	56.10	27.50	16.40	10.4500* 0.030
7. A Portfolio measures my professionalism in a way that a written exam cannot.	25.60	38.50	35.90	40.70	36.30	23.00	53.50	18.40	28.10	44.30	28.30	27.40	14.5870* 0.006
8. Generally, I am satisfied with using the portfolio as an assessment tool.	17.90	46.20	35.90	49.50	37.40	13.10	56.10	25.40	18.50	47.50	33.20	19.30	20.9300* <0.0010
Minimum-maximum	1.7-4.3			1.4-4.6			1-4.1			1-4.6			
Mean \pm SD	3 \pm 0.60			2.8 \pm 0.60			2.6 \pm 0.70			2.70 \pm 0.70			11.7820*
Median (IQR)	3.10(0.7)			2.90(0.9)			2.60(1.1)			2.80(1)			0.0030
A feeling of confidence in using a portfolio for assessment:	N=35			N=85			N=110			N=230			
Yes	37.10			32.90			24.50			29.60			2.7610 0.30
No	62.9			67.10			75.50			70.40			

X^2 : Chi-square Test KW: Kruskal Wallis

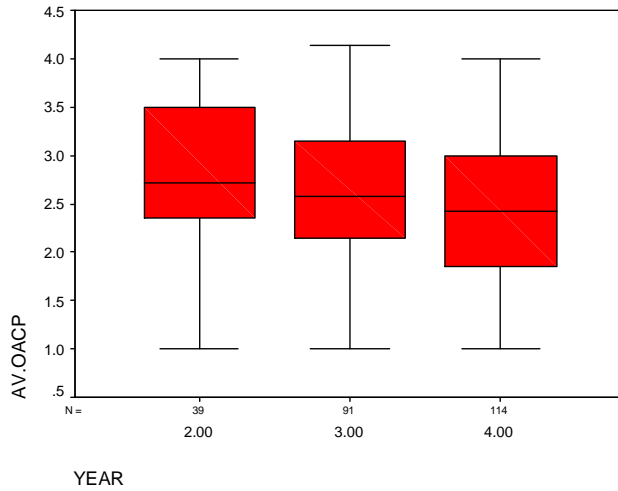


Figure (1): Comparison of the students according to their calculated total perception towards Experience of Building a Portfolio

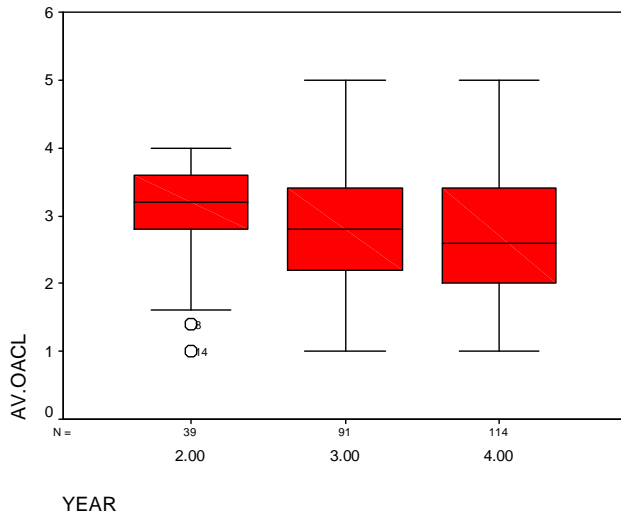


Figure (2): Comparison of the students according to their calculated total perception towards using a Portfolio for learning

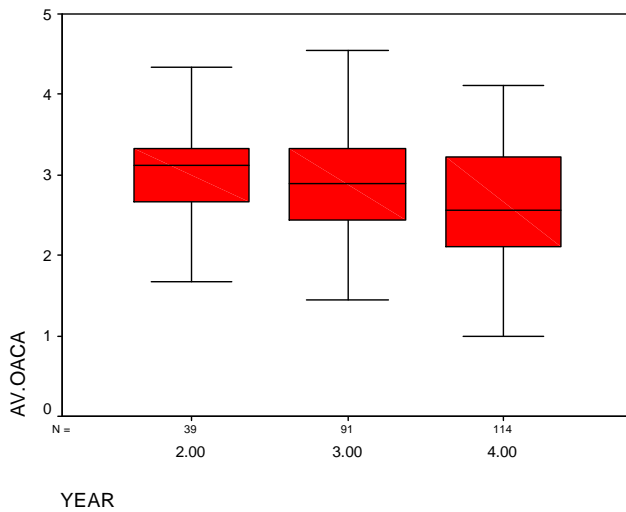


Figure (3): Comparison of the students according to their calculated total perception towards using a Portfolio for assessment

Table (5): The Relationship between Students 'Educational Characteristics and the Calculated Overall Scores for Building of Portfolio, Using of Portfolio as Learning and an Assessment Tool

Students' Educational Characteristics	Building (N=8)	Learning (N=6)	Assessment (N=9)
Past Experience in Preparation or Building of Portfolio (median)			
Yes	2.40	2.80	2.70
No	2.70	3.20	3.0
Z	1.4460	0.7890	1.4580
P	0.10	0.40	0.10
Number of Courses			
r	0.020	-0.0040	-0.060
P	0.80	0.950	0.50
Daily Hours Spent in Preparation of Portfolio			
r	-0.210*	0.100	-0.180*
P	0.0020	0.20	0.010
Hours Spent with A Mentor Guide Per Week			
r	-0.170*	-0.080	-0.160*
P	0.040	0.30	0.050
Cost of Portfolio Preparation (SR)			
r	-0.160*	-0.190*	-0.230*
P	0.020	0.0040	0.0010

Z: Mann Whitney Test P: for significance r: correlation coefficient

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