Critical Thinking and Disposition Skills among Nurse Educators in Jordanian Universities: An Exploration of the Perceived Practices and the Measured Achievement

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Abstract

Aim: This paper is a report of the explorative study that examined the critical thinking (CT) experience of nurse educators from six Jordanian universities.

Background: Critical thinking is an educational process and outcome of the Jordanian strategy to develop nursing education and enhance the quality of nursing graduates.

Method: A three-part survey questionnaire was used in this study: the California Critical thinking Skill Test, the California Critical Thinking Disposition Inventory, and the experience survey. Both descriptive and inferential statistics were used to achieve the study aim. Data were collected between October and December 2008.

Findings: The overall response rate was 73% (n=73). Although nurse educators demonstrated positive dispositions towards critical thinking as well as high expectations of their practice of critical thinking, their scores on the skill test could not reflect these findings. These findings indicated that they require further professional development to support their work in enhancing critical thinking. Furthermore, age, gender, degree and experience of educational concepts were found to affect the result. This study suggests that nurse educators have positive inclination towards and high perceived practices of critical thinking. However, they did not reflect that in their achievement.

Conclusion: Further efforts should be directed towards transforming educators' beliefs into practices. The educators need to improve their professional knowledge of CT, and that the organization is responsible for providing professional development opportunities that promote CT among its faculty members.

Keywords: Critical Thinking, Disposition, Nursing Education, Jordan, Nurse Educators.

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Introduction

Critical thinking (CT) is a crucial component of nursing education due to its implications for educators and graduates.[1] It implies the intentional use of cognitive abilities to analyze a situation, interpret its variables, synthesize answers to resolve the situation, and evaluate the proposed solution in an unbiased way.[2,3] According to Cody, critical thinkers are open-minded, flexible, meticulous, genuine truth-seekers and make well-reasoned judgments.[4] Along with the cognitive abilities must be the dispositional part, which guarantees the determination of the critical thinker to utilize CT skills.[5,6]

The current emphasis of nursing education on CT made it an imperative outcome in the educational process [7] mandated by its inclusion as a required quality by organizations like the Joint Commission on Accreditation of Healthcare Organizations, and the Royal College of Nursing Australia. This also indicated the need for nurse educators to engage in the infusion, measurement and the enhancement of CT in students. In addition, a range of textbooks focused on enhancing CT, including Alfaro-LeFevre,[8] Le Mone and Burke [9] and Wilkinson. [10]

Although essential, nurse educators' experience of CT has not received the needed attention. The researcher could not locate literature examining this particular topic in Jordan. Accordingly and due to its crucial role in promoting quality nursing education, there is a need to examine nurse educators' experience of CT.

Background

Over the past 25 years, CT has become a key component for nurses in their daily practice and education around the world.11,12 Huckabay argued that to practice competently nurses needed to possess and effectively utilize CT skills in partnership with the psychomotor ones.13 Burns and Poster added that nurses utilize their CT and knowledge to make decisions about the care they provide when faced with novel and complex situations.14 Consequently,the result is safer and higher quality patient care.

In Jordan, CT first appeared in nursing education nearly 12 years ago within the recommendations set by the Committee for the Strategic Plan for Nursing Education in Jordan.[15] These recommendations stated that there is a need to enforce requirements for the educators and follow up on and constantly evaluate and modify the educational programs and the performance of graduates.[15] Some of which are related to enhancing CT among educators and students.

Critical thinking was included in the curricula of nursing programs. The role of nurse educators has changed from being instructors in the didactic system to being facilitators in the student centered learning-teaching process. So, the knowledge and experience of nurse educators in CT has become more evidently important to ensure the success of the educational process. This new educator role embraces and applies strategies to enhance the capacity for critical thinking in students, as part of their expected role when subsequently employed.[6] Hence, examining nurse educators' experience of CT determines important aspects of the new paradigm of the learning-teaching process.

The Aim

The aim of this descriptive-explorative study was to examine the critical thinking experience of nurse educators working in Jordanian universities. Data collection was performed in the period between October and December 2009. This study had the following purposes:

- Measure the level of CT skills among nurse educators.
- Explore the nurse educators' experience of CT skills.
- Measure CT disposition elements among nurse educators.
- Provide empirical evidence of the effect of selected demographic variables on the nurse educators' experience of CT.

The Study Design

This study used a survey questionnaire consisting of three parts: the California Critical Thinking Skill Test (CCTST), the California Critical Thinking Disposition Inventory (CCTDI), and the Experience Survey (ES). CCTST was developed from the Delphi study by critical thinking experts and sponsored by the American Philosophical Association (APA).[16] It consists of 34 multiple choice questions associated with generic situations.[17] The reported reliability of the CCTST in the literature using the Kuder-Richardson internal reliability coefficient was 0.68 to 0.80.[18] Both CCTST and CCTDI were reported in the literature to be culturally neutral.[1,19]

Developed from the same construct definition used in the CCTST, the ES asks the participant to rate her/his own practice of each particular skill. Representing the same construct definition, the CCTST measured CT skills and the ES asked the participants to rate their practice of CT on five scales: analysis, evaluation, inference, induction and deduction. Measuring the disposition towards CT, the third tool, the CCTDI, measures seven elements: truth-seeking, open-mindedness, analyticity, systematicity, self-confidence, inquisitiveness, and maturity, all of which resemble the attitudinal component of critical thinking.[20,21]

Participants

One hundred nurse educators with Masters and PhDs in nursing were recruited through face-to-face briefing sessions from six Jordanian universities (2 private and 4 public) conducted by the researcher. This number of participants represented nearly 60% of the total number of nurse educators working in these universities. The overall response rate was 73% (n=73).

Pilot Testing

A pilot testing was performed on 10 participants to determine the suitability of the three questionnaires for the study sample; 80% (n=8) responded and indicated their suitability and recommended no changes on the study plan. The questionnaires were then sent to the participants via the mail and the completed ones were returned following the same path within three weeks of receiving them. The late respondents received another copy of the questionnaire with a reminding letter to complete the questionnaires within the next three weeks.

Ethical Considerations

The ethical approval was first obtained from the six universities which participated in this study. Participants then accepted to participate in the study as confidentiality, anonymity, beneficence, freedom of choice and freedom from exploitation all were ensured to them all through the research process; the collected data contained no identifying remarks and participation was entirely voluntary.

Data Analysis

According to the agreement between the researcher and the owner of the tools, the completed score sheets of the CCTST and CCTDI were sent to the owner of the tools with no marks except on the responses. The owner then sent the results back to the researcher via mail. Descriptive and inferential statistics were carried out using the SPSS to obtain the intended analysis; multiple analyses of variance (MANOVA) were deemed appropriate to explore the relationships among the variable and the scores on the tools to achieve the aim and the purposes of this study.[22,23] Responses from the ES have undergone face and content validity by two nurse researchers and one psychometric specialist. Upon analyzing the scores on the three tools, they were found to present strong reliability values on Cronbach's Alpha. The CCTST yielded .873 for the overall scores and a range of .808-.885 for the skills ($P < .001$). The CCTDI yielded .810 for the overall scores and a range of .500-.680 for the elements ($P < .001$). These values are higher than those reported in literature. The ES, on the other hand, achieved .696 for the overall scores and a range of .581-.824 ($P < .001$).

Study Limitations

The discrepancies between the achievement and the experience reflected by the scores on the CCTST and the ES remain unsolved. There was no in-depth elaboration about the nature and elements of experience of the educators of CT. The nature of the experience that educators were engaged in previously is hard to diagnose. In addition, this study recruited only educators working in universities, leaving the experience of educators working in centers and health facilities without exploration.

The Findings

The 73 respondents who completed the study questionnaire were 37 with Masters in nursing and 36 with PhD degrees. The participants had an average of 12.4 years of experience as a nurse educator with a range of 1-36 years (years of experience did not show any statistical significance on analysis). The participants instructional setting fell into three categories: classroom only 18% (n=13), clinical setting only 19% (n=14), classroom-clinical settings 63% (n=36). Table (1) illustrates the demographic findings of the participants.

The California Critical Thinking Skill Test Findings

The participants in this study could not match the average scores of undergraduate and college graduates in the USA on CCTST. The all-item mean score in this study was 12.37 while the national mean of 4-year graduates in the USA was 16.8 although this comparison might be considered inappropriate. However, due to the absence of any average, other than that provided by the Insight Assessment Foundation (the owner of the tool), this provided a point of reference for the researcher and the reader as well. Table (2) illustrates these findings.

The degree of the participants was found to affect the scores of CCTST in this study. PhD holders scored significantly higher on all scales ($P < .001$). Gender, on the other hand, has achieved mixed findings. Female participants achieved significantly higher on the 'analysis', 'induction' and 'all-item', while the male scores on 'deduction' were significantly higher ($P < .001$). The scores on 'evaluation' and 'inference' were not statistically significant. Age has also achieved mixed findings. With the exception of the >55 age group (which scored statistically higher than the other age groups), there was no clear pattern to correlate CCTST scores with age. The participants who had degrees in education scored statistically higher than the other groups on all scales, except on 'analysis' where the 'no-training' group scored higher ($P < .001$). Finally, the mixed group (classroom-clinical) scored significantly higher than the other two groups on all scales ($P < .001$).

Findings of the Experience Survey

The degree of the participants was found to affect the scores of the ES in this study (Table 2). PhD holders scored significantly higher on 'analysis', 'evaluation' and 'deduction', while MSN scored higher on 'induction' ($P < .001$); none scored significantly higher on 'all-item'. On the gender variable, male participants achieved significantly higher on the 'inference', 'induction' and 'all-item' ($P < .001$), while scores on 'deduction', analysis' and 'evaluation' were found insignificant. The age group >55 scored statistically higher than the other age groups. The participants who had degrees in education scored statistically higher than the other groups on 'analysis' and 'inference'. The workshop/seminar group, on the other hand, scored significantly higher on 'induction', 'deduction' and 'all-item' ($P < .001$). None of the groups scored significantly higher scores on the 'evaluation' scale. The mixed group scored significantly higher on 'analysis' and 'induction', while the classroom group scored higher on 'evaluation' and 'deduction' ($P < .001$). The clinical only group scored higher on 'inference' scale ($P < .001$) leaving no significant score on 'all-item' among the three groups.

Table (1): Demographic findings (n=73).

The variable		***Number (%)***
Gender	*Male*	*19 (26%)*
	Female	*54 (74%)*
Type of university	*Public*	*53 (73%)*
	Private	*20 (27%)*
Academic Degree	*MSN*	*37 (51%)*
	PhD	*36 (49%)*
Educational background	*Degree*	*34 (47%)*
	Workshop/seminar	*16 (22%)*
	No training	*23 (31%)*
Age	*25-35*	*34 (47%)*
	36-45	*31 (42%)*
	46-55	*6 (8%)*
	>55	*2 (3%)*
Educational setting	*Classroom*	*13 (18%)*
	Clinical	*14 (19%)*
	Classroom & Clinical	*36 (63%)*

Table (2): Participants' scores on the California Critical Thinking Skill Test (CCTST) and the experience survey (ES)*

Scale	***Mean***		***S.D.****		***Minimum***		***Maximum***	
	CCTST	***ES***	***CCTST***	***ES***	***CCTST***	***ES***	***CCTST***	***ES***
Analysis	*3.34*	*5.07*	*1.41*	*.99*	*0*	*1.88*	*6*	*6*
Evaluation	*2.95*	*5.01*	*1.55*	*.11*	*1*	*2.19*	*7*	*6.56*
Inference	*6.08*	*10.07*	*2.81*	*2.16*	*2*	*5.25*	*14*	*14*
Induction	*6.86*	*7.93*	*2.61*	*3.54*	*2*	*0.00*	*12*	*12*
Deduction	*5.51*	*11.40*	*2.42*	*2.74*	*2*	*3.5*	*14*	*14*
All-item	*12.37*	*18.81*	*4.55*	*3.49*	*5*	*9.49*	*26*	*25*

***(P < .001)** **S.D.: Standard Deviation**

Table (3): Participants' scores on the California Critical Thinking Disposition Inventory*

Scale	***Mean***	***Median***	***Minim***	***Maxim***	***S.D.****	***S.E. Mean***
Truth-seeking	*35.04*	*35.00*	*19*	*47*	*5.81*	*0.680*
Open-mind	*39.34*	*40.00*	*26*	*48*	*4.69*	*0.549*
Analyticity	*46.51*	*47.00*	*33*	*56*	*5.93*	*0.694*
Systematicity	*42.23*	*42.00*	*27*	*57*	*5.33*	*0.623*
Self-confidence	*46.97*	*48.00*	*31*	*57*	*4.95*	*0.579*
Inquisitiveness	*48.75*	*50.00*	*31*	*59*	*5.73*	*0.671*
Maturity	*37.93*	*38.00*	*21*	*53*	*5.85*	*0.684*
All-item	*296.78*	*301.00*	*234*	*341*	*23.60*	*2.760*

***(P < .001)** **S.D.: Standard Deviation**

Findings of the California Critical Thinking Disposition Inventory

California Critical Thinking Disposition Inventory's (CCTDI) descriptive statistics are illustrated in Table 3. Scores higher than 50 indicate a strong disposition towards CT, and scores between 40 and 49 indicate a positive disposition. A score range of 30-39 refers to an ambivalent disposition. And finally, scores below 30 show a hostile or adverse disposition towards CT.[5]

The demographic variables were examined and showed significant differences amongst their groups. The PhD degree holders scored significantly higher than the MSN on all scales except on 'inquisitiveness' where no significant difference was found ($P < .001$). The female participants scored significantly higher than the males on all scales except the 'truth-seeking' scale, where no significant difference was found ($P < .001$). The age group >55 had the highest scores compared with the other age groups on all scales except for 'truth-seeking', where the 46-55 group scored significantly higher ($P < .001$). The nurse educators with a degree in education scored significantly higher than the other two groups of participants on 'open-mindedness', 'analyticity', 'self-confidence' and 'maturity'. The nurse educators who had previous exposure to educational concepts through workshops/seminars scored significantly higher than the other two groups on 'truth-seeking', 'systematicity' and 'inquisitiveness'. The classroom group scored significantly higher compared with the other two groups on 'maturity', 'systematicity', 'open-mindedness' 'and 'truth-seeking' ($P< .001$). The mixed group, however, scored significantly higher on 'inquisitiveness', 'self-confident' and 'analyticity'.

Correlation Between the Findings of Three Tools

Understanding the correlations between the scores of the three tools improves our interpretation of the findings. The correlation between the CCTDI and the experience survey on the Pearson Correlation Formula was 0.298 ($P<.001$). Although weak, a positive correlation relationship between both tools exists. On the other hand, the experience survey scores were remarkably higher in all scales compared with those yielded on the CCTST. The correlation between the mean score of CCTST and the experience survey was 0.167 ($P<.001$). The weak correlation between the two scales, which are theoretically representing the same conceptual definition, resulted from the over estimation by the participants of the participants' practices.

Discussion

Findings in this study indicated that the CCTST scores were less than the reported mean score in the USA. The CCTDI scores, on the other hand, were indicative of a positive to strong disposition towards the adoption and application of critical thinking. These contradicting findings on the surface were further explored by the self-rating experience of CT on the ES. The participants reported high expectations of their experience of CT. This refers to the educators' willingness to infuse CT in their practice and they assume such issue. Yet, their knowledge of CT could not reflect this assumption. Similar expectations were found in the literature indicating higher assumptions compared with the actual achievement.[24-26]

The majority of the demographic variables indicated significant effects on the nurse educators' experience of CT on the three tools. The differences between the scores of the CCTST and the ES indicated an over estimation of the critical thinking practice among the educators. The majority of CCTDI scores indicated moderate to positive disposition scores. The adverse or weak disposition in the overall scores represented only 1.8% of the total population.

The correlation values between the CCTST, the experience survey and the CCTDI indicated weak to moderate positive values.

The CCTST achieved strong reliability and internal consistency values on the Cronbach's Alpha in this study. The findings of this study on the CCTST demonstrated lower achievement levels of nurse educators when compared with the USA norms. These findings do not have comparable scores in the literature as this study is the first to apply the CCTST to university educators. The variables examined in this study generally demonstrated significant findings among their groups on the CCTST scales. The only exception was 'years of experience', which did not show any statistical significance. Although used in a new educational and cultural context, the findings on the CCTST were generally comparable with nursing literature, which reported nurses' CT skills.[1,7]

Conclusion

The findings of this study provide important insights into nurse educators' experience of CT. They suggest the need for a more comprehensive approach in diffusing CT within the nursing curricula so that CT can be widely incorporated at all levels of undergraduate and graduate education. More importantly, by making cultural meanings explicit, and by clearly defining the practices and achievements of nurse educators based on findings from this study, enriching the current experiences of CT to promote better understanding, application and evaluation in students will be made easier among educators. There is evidence on the importance of preparing the educators to practice and enhance CT.

Finally, the researcher had limited exploration of the conceptual understanding and examination of the conceptualization of CT, leaving this to future studies.

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التفكير النقدي ومهارات التصرف بين مدرسي التمريض في الجامعات الأردنية: دراسة استكشافية للممارسات المتصورة وقياس الانجاز

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الملخص

الهدف: تُعد الورقة تقرير عن دراسة استكشافية لقياس خبرة ومستويات التفكير النقدي لمدرسي التمريض في الجامعات الأردنية.

الخلفية: التفكير النقدي هو عملية ونتيجة تعليمية تهدف لتطوير التعليم وتحسين نوعية الخريجين بهدف تطوير الاداء التحليلي والاستنتاجي لديهم.

الأسلوب: تم استخدام استبيان من ثلاثة أجزاء في هذه الدراسة، واختبار كاليفورنيا لمهارات التفكير الناقد، أداة كاليفورنيا لمستوى الميل نحو التفكير النقدي، ومسح خبرة المدرسين مع التفكير الناقد. ولقد استخدمت إحصاءات وصفية واستنتاجية متقدمة لتحقيق أهداف الدراسة. وقد تم جمع البيانات بين شهري تشرين أول وكانون أول من العام ٢٠٠٨.

النتائج: كان معدل الاستجابة الكلي ٧٣٪ (ن = ٧٣). على الرغم من أن مدرسي التمريض أظهروا ميل إيجابي نحو التفكير النقدي، فضلا عن التوقعات الكبيرة من ممارستهم لأدوات التفكير النقدي، لكن نتائجهم في اختبار المهارات لم تعكس ذلك. علاوة على ذلك، فان النتائج أشارت الى تأثير كل من العمر والجنس والدرجة والخبرة على النتائج.

الخلاصة: ينبغي توجيه المزيد من الجهود من أجل تغيير معتقدات المدرسين في الممارسات التعليمية. وأشارت النتائج الى حاجة المدرسين الى المزيد من التطوير المهني لدعم عملهم في تعزيز التفكير النقدي. يحتاج مدرسي التمريض إلى تحسين معرفتهم بمهارات التفكير النقدي. اضافة الى مسؤولية المدرسين أنفسهم، فان مسؤولية تطوير أداء المدرسين تقع على عاتق المؤسسات التعليمية من حيث توفير فرص التطوير المهني والأكاديمي.

الكلمات الدالة: التفكير الناقد، الأردن، مدرّسي التمريض.