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Script Concordance Model and Think Aloud Approach to Facilitate Clinical Reasoning in Baccalaureate Nursing Students

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Summary

Nurses are required to assess and interpret patient information to implement interventions that optimize patient outcomes (Institute of Medicine, 2003). This process of assessment, interpretation, intervention, and ultimately evaluation is guided by nurses’ ability to identify salience. Salience has been described as the ability to recognize important areas of focus and change in a clinical situation (Benner, Sutphen, Leonard, & Day, 2010). The ability to interpret these assessments and plan interventions in the context of salience constitutes clinical reasoning (Levett-Jones, et al., 2010; Simmons, 2010). Effective clinical reasoning has been associated with improved patient outcomes (Liou, et al., 2015).

Healthcare professionals agree clinical reasoning is a complex process which requires specific knowledge and the ability to understand the clinical situation in order to act (Fournier, Demeester, & Charlin, 2008; Furze, Gale, Black, Cochran, & Jensen, 2015). Clinical situations often do not unfold in a clear cut linear fashion for which standard recipes for interventions can be applied. Human beings are complex and health and illness is influenced by intrinsic and extrinsic variables (Deschenes, Charlin, Gagnon, & Goudreau, 2011). Nurses must assess and consider these variables in a clinical situation, draw on evidence-based knowledge, identify salience, and then act. Clinical situations are dynamic hence, ongoing evaluation to alter interventions accordingly is also required (Charlin, Roy, Brailovsky, & Goulet, 2000).

In nursing education, opportunities for faculty to facilitate students’ clinical reasoning exist in simulated and actual clinical settings and in the classroom. Acquisition of clinical reasoning is an ongoing process refined at each academic level (freshman, sophomore, junior, senior) and continues to develop over a lifetime of professional practice (Charlin, Roy, Brailovsky, & Goulet, 2000; Tanner, 2006). Faculty provide varied learning experiences that foster clinical reasoning in each of these settings (simulation, actual clinical, and classroom) and rigor increases as nursing students progress to each academic level.

Simulation is an active teaching strategy that immerses students in life-like clinical experiences with manikins or standardized patients (Jeffries, 2012). It has been reported that clinical reasoning is enhanced with simulation because it provides students with the opportunity to integrate theory and practice in a safe simulated clinical environment (National League for Nursing, 2015). Time spent by students in actual clinical settings such as hospitals and long-term care facilities also provide opportunities to foster clinical reasoning (Harmon & Thompson, 2015).

In the actual clinical setting, the Outcome Present State Test Model (OPT) has been used as a teaching tool to guide students through the clinical reasoning process. Students utilize the OPT to identify key issues related to the patient’s health and illness state and formulate desired outcomes. Interventions are developed to achieve these desired outcomes. Over time with repeated patient encounters students utilizing OPT have been reported to improve their clinical reasoning skills (Bartlett, et al., 2008; Bland, et al., 2009; Kuiper, 2013).

It is in the classroom however, where students are often introduced to evidence-based knowledge and practices foundational to clinical reasoning later applied in simulated and actual clinical settings. Teaching strategies to facilitate clinical reasoning in the classroom include collaborative learning activities, focused reflection, concept mapping, case studies, and role playing. However, assessment of students’ actual acquisition of clinical reasoning as a result of these teaching strategies is difficult to determine as reliable
and valid tools are lacking (Dawson, Comer, Kossick, & Neubrander, 2014; Deschenes, Charlin, Gagnon, & Goudreau, 2011).

Script Concordance Test (SCT) is an evaluation method to assess clinical reasoning under conditions of uncertainty (Charlin, Brailovsky, Leduc, & Blouin, 1998). It has been predominantly used in medical education but has demonstrated success in physical therapy, pharmacy, optometry, dentistry, and veterinary medicine (Dufour, et al., 2012; Faucher, Dufour-Guindon, Lapointe, Gagnon, & Charlin, 2016). There are only two reports of use of SCT in nursing (Dawson, Comer, Kossick, & Neubrander, 2014; Deschenes, Charlin, Gagnon, & Goudreau, 2011).

SCT is based on script theory developed by two cognitive psychologists, Roger Shank and Robert Abelson (1977). Script theory posits higher level thinking skills originate from cognitive scripts, knowledge, and previous experiences (Shank & Abelson, 1977). According to script theory, individuals create mental scripts from pre-established knowledge and repeated past experiences which guide their actions (Dawson, Comer, Kosick, & Neubrander, 2014; Deschenes, Charlin, Gagnon, & Goundreau, 2011; Shank & Abelson, 1977).

A SCT is a case-based written examination (Charlin, Roy, Brailovsky, & Goulet, 2000). A short clinical scenario is presented. For each scenario, there are three columns; (a) the first column is a possible plausible hypothesis based on the scenario, (b) the second column contains new information, and (c) the third column requires the student to select an option about the significance of the information presented in the second column in relation to the hypothesis. These options are presented on a five-point Likert scale (Wilson, Pike, & Humbert, 2014).

Script Concordance Test uses a “panel-based aggregate scoring method” (Gagnon, Lubarsky, Lambert, & Charlin, 2011, p. 601). Scores for each question on the SCT are based on the responses by a panel of experts. For each question, the answer most frequently selected by a panel of experts is designated as the modal answer and is assigned the highest score. Partial credit is assigned proportionally for other options selected by some of the expert panel (Lubarsky, Dory, Duggan, Gagnon, & Charlin, 2013). How closely students’ answers match with those of the expert panel reflects concordance (Deschenes, Charlin, Gagnon, & Goudreau, 2011).

Although there are references in the literature that SCT has potential to be an effective teaching/learning tool, it has been predominately used for testing (Faucher, Dufour-Guindon, Lapointe, Gagnon, & Charlin, 2016). It has been suggested by adding the Think Aloud approach a richer understand of students’ clinical reasoning may be ascertained (Power, Lemay, & Cook, 2017). In the Think Aloud approach students verbalize the thought process that led to their conclusion (Banning, 2010; Lee & Ryan-Wenger, 1997). Power, Lemay, & Cook (2017) applied the concept of the Think Aloud approach by having students write the rationale for answers selected for each SCT test item.

The purpose of this study is to determine the effectiveness of the Script Concordance Test method coupled with the Think Aloud approach as a teaching/learning strategy to facilitate clinical reasoning in first semester senior-level baccalaureate nursing students.

Research Question

Does use of the Script Concordance Test model in conjunction with the Think Aloud approach as a teaching/learning strategy facilitate clinical reasoning in first semester senior-level baccalaureate nursing students enrolled in a pediatric course?

What are first semester senior-level baccalaureate nursing students’ perceptions of the Script Concordance Test model in conjunction with the Think Aloud approach as a teaching/learning strategy to facilitate clinical reasoning?
Hypotheses

Use of the Script Concordance Test model in conjunction with the Think Aloud approach as a teaching/learning strategy in first semester senior-level baccalaureate nursing students improves clinical reasoning as measured by the Script Concordance Test model.

Methods

This study is a quasi-experimental design which will be executed in the Fall 2017 and Spring 2018 semesters. The class activity for 7 weeks out of a 14-week semester will include use of the Script Concordance Test Model in conjunction with the Think Aloud approach as a teaching/learning strategy.

Students will be asked to complete a paper/pencil Script Concordance Test and provide written rationale for answers selected for each test item consistent with the Think Aloud approach. The test is not included in the course grade as it is being utilized as a teaching/learning strategy. After completing the test, class discussion regarding the content will ensue.

Data regarding students’ perceptions of the Script Concordance Test model in conjunction with the Think Aloud approach as a teaching/learning strategy to facilitate clinical reasoning will be administered anonymously at the end of the semester using Qualtric. Demographics are optional and will be requested anonymously as the last component of the survey using Qualtrics. Demographics will include age and gender.

In accordance with recommended guidelines for development of the Script Concordance Test (Lubarsky, Dory, Duggan, Gagnon, & Charlin, 2013) 10 expert pediatric nurses with >3 years of experience will anonymously take the test in order for the Principle Investigator to develop scoring for each test question.

Data analysis will be based on aggregate scores over the 7-week period to determine if clinical reasoning has improved. Inductive thematical analysis of written response to each test question will be conducted.

Title:

Script Concordance Model and Think Aloud Approach to Facilitate Clinical Reasoning in Baccalaureate Nursing Students

Keywords:

Clinical Reasoning, Script Concordance Test Model and Think Aloud Approach

References:


**Abstract Summary:**

The Script Concordance Test (SCT) model is a method to evaluate clinical reasoning. Coupled with the Think Aloud approach, this may be an effective clinical reasoning teaching/learning tool. This study describes the effectiveness of the SCT model and Think Aloud approach to facilitate clinical reasoning in baccalaureate nursing students.

**Content Outline:**

Introduction

Clinical reasoning is the ability to assess a clinical situation and plan interventions in the context of salience (Benner, Sutphen, Leonard, & Day, 2010; Simmons, 2010). Salience has been described as the ability to recognize important areas of focus and change in a clinical situation (Benner, Sutphen, Leonard, & Day, 2010). Effective clinical reasoning has been associated with improved patient outcomes and safety (Liou, et al., 2015). Nursing faculty have an ethical responsibility to ensure students have the knowledge and skills required for safe nursing practice (American Nurses' Association, 2015).

II. Body

Main Point #1 with Supporting Evidence
In the classroom nursing students are introduced to evidence-based knowledge and practices foundational to clinical reasoning later applied in simulated and actual clinical settings. Teaching strategies to facilitate clinical reasoning in the classroom include collaborative learning activities, focused reflection, concept mapping, case studies, and role playing. However, assessment of students’ actual acquisition of clinical reasoning as a result of these teaching strategies is difficult to determine as reliable and valid tools are lacking (Dawson, Comer, Kossick, & Neubrander, 2014; Deschenes, Charlin, Gagnon, & Goudreau, 2011).

Main Point #2 with Supporting Evidence

Script Concordance Test (SCT) is an evaluation method to assess clinical reasoning under conditions of uncertainty (Charlin, Brailovsky, Leduc, & Blouin, 1998). It has been predominantly used in medical education but has demonstrated success in physical therapy, pharmacy, optometry, dentistry, and veterinary medicine (Dufour, et al., 2012; Faucher, Dufour-Guindon, Lapointe, Gagnon, & Charlin, 2016). There are only two reports of use of SCT in nursing (Dawson, Comer, Kossick, & Neubrander, 2014; Deschenes, Charlin, Gagnon, & Goudreau, 2011). The Think Aloud approach entails having students verbalize their clinical reasoning thought process (Banning, 2010; Lee & Ryan-Wenger, 1997; Power, Lemay, & Cook, 2017).

Main Point #3 with Supporting Evidence

The SCT model with the Think Aloud approach has potential to be an effective teaching/learning tool to enhance clinical reasoning (Faucher, Dufour-Guindon, Lapointe, Gagnon, & Charlin, 2016; Power, Lemay, & Cook, 2017).

III. Conclusion

The purpose of this study is to determine the effectiveness of the Script Concordance Test model coupled with the Think Aloud approach as a teaching/learning strategy to facilitate clinical reasoning in first semester senior-level baccalaureate nursing students.

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