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Problem-based learning: A strategy to foster generation Z's critical thinking and perseverance

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ABSTRACT

Educators are concerned about Generation Z's inexperience with higher order critical thinking and tendency to give up or move on when faced with challenges. While acknowledging that this generation brings technological skills and an inclusive mindset that will enhance our profession, educators are challenged to adapt teaching strategies to promote critical thinking and foster perseverance. This manuscript will recount the attributes of Generation Z and describe problem-based learning as a strategy to enhance critical thinking and perseverance.

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During the COVID-19 pandemic, the nursing workforce has demonstrated courage and perseverance in the face of challenges. Nurse educators are concerned about how to prepare nursing students for these workforce conditions and wonder how to equip students with the skills to persevere. Most nursing students in programs now are part of Generation Z (Hampton & Keys, 2017). By recognizing Generation Z's learning needs, nurse educators can prepare students for the workforce through teaching strategies that empower critical thinking and perseverance skills. Teaching strategies that engage students in critical thinking and foster perseverance are of particular interest during the coronavirus pandemic because sites and opportunities for clinical rotations may be diminished. The following discussion will define critical thinking, perseverance, and problem-based learning (PBL), describe Generation Z, and then provide suggestions of how to use PBL as a strategy to build critical thinking skills and perseverance.

PBL

PBL employs constructivist principles to foster application of prior knowledge, collaborative learning, and active engagement. To begin a PBL activity, a small group of students analyzes a problem, identifies relevant facts, and applies existing knowledge and experiences to solve a problem (Alexander, McDaniel, Baldwin & Money, 2002; Oja, 2011; Papastrat & Wallace, 2003; Yew & Schmidt, 2012; Zhou, 2018). The problem in a PBL activity should be a typical, work-related issue or situation that includes missing information or unclear answers such as ill-structured case studies (Miner-Romanoff, Rae &

Zakrzewski, 2019). The use of ill-structured case scenarios engages students in exploration of resources and self-directed information seeking; skills that are necessary in the nursing workforce and may be the first step toward perseverance.

In PBL, the teacher takes the role of a facilitator rather than a lecturer. The facilitator helps the groups construct understanding and connect concepts by scaffolding information, directing exploration, reinforcing understanding of difficult concepts, and introducing resources. In addition, the facilitator prompts reflection of group process and group outcomes. The facilitator may also be considered a coach or a guide who provides feedback and encouragement (Salari, Roozbehi, Zarifi & Tarmizi, 2018).

Facilitators keep the groups on track and prompt critical thinking. Klunklin, Subpaiboongid, Keitlertnapha, Viseskul, and Turale, (2011) studied nursing student adaption to the PBL process. Their findings provide good insights for PBL facilitators. The study revealed that students adapting to PBL experience anxiety related to the new learning format and worry about their success with it. Facilitators need to be aware that students may need greater support, feedback, and encouragement when first participating in PBL. Students in the Klunklin et al. study reported appreciation for facilitators who provided feedback and encouragement. This finding may be a clue for successful promotion of perseverance through challenging PBL activities.

Studies of PBL in nursing education, including a systematic review (Oja, 2011) and a meta-analysis (Shin & Kim, 2013), reported positive results with student satisfaction, improved communication skills, and enhanced critical thinking (Jones, 2008; Klunklin et al., 2011; Miner-Romanoff, Rae & Zakrzewski, 2019). Hodges (2011) promoted PBL as a strategy to prepare nursing students for the complex work environment by pushing them out of their comfort zone and giving them an opportunity to deal with uncertainty. Shin and Kim's (2013)

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meta-analysis revealed that PBL improved problem-solving in the clinical environment and promoted greater student satisfaction with the learning. This meta-analysis also reported that PBL was more effective with cognitive learning than traditional, lecture-based teaching. Recently, Zhou (2018) conducted a study of the influence of PBL on critical thinking in nursing students and discovered that PBL improved the analysis and interpretation elements of critical thinking. Likewise, Salari et al., (2018) also studied the effects of PBL on nursing student development of higher order cognition. Their results aligned with other studies, which demonstrated that PBL was more effective than traditional lectures to engage students in application, analysis, evaluation, and synthesis.

Critical thinking

The American Association of Colleges of Nursing (2008) defines critical thinking as “all or part of the process of questioning, analysis, synthesis, interpretation, inference, inductive and deductive reasoning, intuition, application, and creativity” (p. 36). The Critical Thinking Foundation describes critical thinking as an intellectual discipline that involves the following elements of thought: purpose and problem identification, concept clarification, discovery of assumptions, consideration of points of view, detection of implications/consequences, validation of evidence, and reflection (Hawkins, Paul and Elder, 2010). Those definitions offer a framework to structure learning activities that foster critical thinking by engaging the students in the elements such as questioning, analyzing, synthesizing, etc. Clinical judgment, an outcome of critical thinking, is the basis for the new NCLEX format (AACN, 2008, NCSBN, 2020). The new NCLEX format applies the Clinical Judgement Model which includes the thinking process of clue recognition, analysis of clues, prioritization of hypothesis, generation of solutions, identifying actions, and evaluation of outcomes (NCSBN, 2020). Our goal as nurse educators is to promote student thinking that will ultimately lead to sound clinical judgments which will produce safe clinical decisions. Nurse educators must select teaching strategies that support student critical thinking, clinical judgments, and care decisions to help our students not only pass licensure exams, but also to provide quality care within today’s complex healthcare environments.

Perseverance

Perseverance is defined as courage to not give up when confronted with difficulties and failure; a quality that is predictive of quality work performance (Littman-Ovadia & Lavy, 2016). Littman-Ovadia and Lavy (2016) conducted a survey of 686 employed adults and discovered that those who felt that they were “called” to do their line of work, felt as if their work was a career and not just a job, and found meaning in their work were more apt to persevere through challenges. They suggested that leaders could foster perseverance by encouraging employees to connect with their passion and sense of

purpose. In addition, they recommend that educators should prepare students to expect and anticipate challenges and failures in their career. Wolters and Hussain’s (2015) study identified that perseverance was a predictor of learning. They discovered that college students who had increased perseverance demonstrated greater self-efficacy with learning, an increased ability to choose effective learning strategies, and had better time management skills. In addition, the students with greater perseverance in the Wolter’s and Hussain study also valued the learning, and thus were more motivated to learn. This study supported that educators need to encourage (motivate) students to be persistent in their efforts by providing clear alignment of efforts to goals, as well as, foster learning through exposing students to effective learning strategies and time management strategies. Furthermore, educators must plan opportunities for students to practice these strategies. In another study, Olson (2017) discovered that grit, tenacity, and perseverance could be developed in college through intentional assignments and identified self-confidence and tenacity as keys to effective perseverance.

Application of PBL to generation Z

Although generational generalizations could encourage stereotypes, acknowledgment of generational attributes may provide insights for selection of teaching strategies. Generation Z students need support with critical thinking skills and opportunities to enhance perseverance (Twenge, 2016). The following discussion will highlight generation Z’s attributes and describe how PBL can develop skills and augment strengths. Table 1 provides an overview of the learning needs of generation Z justified with PBL fulfillment of the skill gap or capitalization of the learning strength.

PBL is an ideal strategy to engage Gen Z student in higher order critical thinking. The PBL process aligns with the definition of critical thinking and the elements of thought involved with critical thinking. For instance, in PBL, students’ question, analyze, synthesize, interpret, infer, reason, apply, and use intuition and creativity. PBL also may involve clarifying concepts, prioritizing problems, and identifying what is known and what is not known, examining assumptions, assessing different viewpoints, identifying possible interventions, examining alternatives, and reflecting on the process. Also, facilitators could add another element of good decision-making by prompting students to identify resources that would aid in data gathering and decision making (Table 2).

Generation Z prefers practical, real-world learning experiences (Chicca & Shellenbarger, 2018a; Hampton & Keys, 2017; Seemiller & Grace, 2017; Schmitt and Lancaster, 2019). PBL provides an ideal strategy to capture the student’s attention with real clinical problems and provide a learning medium that the students would find meaningful and applicable to their role in patient care.

Gen Zer’s are “true digital natives” (Chicca & Shellenbarger, 2018b, p. 250). They excel in finding information and communicating in the digital world. As a generation who have not known a time before the

Table 1
Generation Z skill gaps fulfilled by PBL or learning strength augmented by PBL

Gen Z	PBL
Prefer real-world, practical, experiential learning Technologically savvy	Involves a clinical problem regarding a patient situation Could employ finding missing information through a teaching EHR, database, or other online resource.
Need growth in communication skills and practice with team behaviors Crave feedback and validation, lack confidence Need growth and practice with critical thinking Need growth and practice with perseverance	Includes small group collaboration and team effort. Includes small group validation of each member’s input and feedback from facilitator. Engages student in higher order cognition and in all the elements of thought. Includes ill-structured problems that require student motivation and persistence to find information, form conclusions, and make decisions.

Table 2
Example of PBL Activity to engage critical thinking and perseverance

Realistic case embedded with problems	<p>A patient is readmitted to the hospital for exacerbation of heart failure one week after discharge. The patient is in uncontrolled atrial fibrillation and currently has an oxygen saturation of 90 that drops to low 80s with any activity. The patient said that he could not afford to purchase the “new water pill” that was prescribed at discharge and admits that he waited to come into the ER because of fears related to the corona virus pandemic. This patient is assigned to you.</p>
Small group prompts to address the case and engage critical thinking.	<ul style="list-style-type: none"> • Identify the problem(s) or issue (s) that the nurse must address. • Identify what is known about this patient and the situation. • Identify what information is missing and needed to make good care decisions. • Identify what resources will help you gather the missing information. • Decide by consensus what to do to correct the problem or issue. • Provide rationale for your decisions including prioritization of problems and nursing interventions, implications of nursing interventions, possible consequences of nursing interventions, and evidence to support your decisions.
<p>Facilitator Prompts to foster perseverance. Prompting could occur when group productivity is stalled or within a debriefing session. These facilitator prompts are suggestions as dictated by the situation and not necessary a list to be used in any order.</p>	<ul style="list-style-type: none"> • Review the case and all possible decisions and outcomes to reinforce and validate safe decisions and safe patient care. • Praise the group for information gathered, clue recognition, communication, collaboration, appropriate use of resources, and progress. • Provide constructive feedback regarding communication, analysis of information, and resource utilization skills. • Prompt the group to evaluate group communication, collaboration, and individual member contributions. • Ask the group to discuss the challenges they encountered. • Require the group to consider the consequences to the patient if they did not persevere to find needed information and make difficult decisions. • Engage the group in reflection of how the case, and the process in which the group worked through the case, would be applicable to their success as a nurse. • Foster connection to their sense of career/calling by encouraging members to discuss what drives them to become a nurse and how they plan to tap into that as they encounter challenges in their career.

internet, they are prolific consumers of digital technology. They can instantly find a fact or find a video tutorial on how to do just about anything. These advanced technological skills enable them to quickly look up information and navigate most any digital platform. Nurse educators could capitalize on the technology skills of Gen Z by designing PBL activities that require online resource utilization such as academic electronic health records, scholarly websites, virtual tutorials, or databases to find missing information, gather needed information, clarify concepts, and explore options.

As a generation who is proficient with communication through messaging and social media, Generation Z may need support mastering professional communication and the skills to work effectively in teams (Chicca & Shellenbarger, 2018b; Hampton & Keys, 2017; Seemiller & Grace, 2017; Twenge, 2016). Engaging in PBL could enhance communication and team behaviors through the small group dynamics and collaboration during the activity as well as facilitator feedback.

When challenged to search for meaning and understanding that is not instantly apparent, Gen Zers may become frustrated (Chicca & Shellenbarger, 2018b; Twenge, 2016). Nurse educators must recognize that this generation wants to succeed and are willing to work hard but may need extra support to learn and practice perseverance (Twenge, 2016). The facilitator of PBL activities may foster perseverance by prompting the students to reflect upon their role as the nurse as if they were dealing with situation in real-life. This reflection can bring their belief of being “called” to the forefront and help to connect their passion for nursing to the task of striving (persevering) to making clinical decisions in a complex work environment. PBL activities that employ unfolding case-studies, could be enhanced with built in challenges such as “there are no ICU beds available,” or “the nurse-patient ratio is greater because a nurse called in sick,” or “the pharmacy is out of one of the recommended drugs.” Throwing in common nursing challenges may help students to realize that challenges are innately part of a typical nursing day. The facilitator could also hold a debriefing to reflect not only upon the conclusions/decisions from

the patient scenario, but also to reflect upon the team behaviors needed, the challenges encountered, and the consequences if the nurse or team would not follow through and persevere.

Generation Z’s immersion in social media and dependence on their phones for social interaction, validation, and feedback has been correlated with greater levels of isolation, poor self-confidence, anxiety, and depression (Chicca & Shellenbarger, 2018b; Twenge, 2016). However, encouragement may bolster confidence and lessen anxiety (Hampton & Keys, 2017; Schmitt & Lancaster, 2019; Twenge, 2016). The PBL facilitator may influence the confidence of the students during a PBL activity through praise and constructive feedback regarding group communication, team behaviors, information gathering, analysis of data, progress toward consensus, and appropriate use of resources. Immediate feedback may foster realistic reflection of their efforts, skill level, and knowledge which could build confidence. Also, the facilitator may be instrumental in prompting input and encouragement within the group as way for group members to validate each other’s contributions (Table 2).

Generation Z is also very concerned with emotional, physical, and financial safety. Such concerns were triggered by their early exposure to unstable, uncertain times that included bombings, school shootings, 9/11, and now, the coronavirus (Marshall & Wolanskyj-Spinner, 2020). They strive for job security and fear the consequences of not succeeding in their career of choice (Chicca & Shellenbarger, 2018b; Hampton & Keys, 2017; Seemiller & Grace, 2017; Twenge, 2016). The PBL facilitator could allay some of these fears by hosting a debriefing after the PBL activity. The debriefing could include a reflection of how the knowledge gained and skills within the activity helped to prepared them for success.

Conclusion

Generation Z has been reported as the most open-minded, inclusive generation and the most technologically savvy (Chicca & Shellenbarger, 2018b; Twenge, 2016). However, educators must consider

that Generation Z learns differently and has a unique worldview that differs from preceding generations. Although PBL is not a new teaching strategy, it is an ideal, evidence-based, option to fill the skill gaps regarding critical thinking and perseverance as well as accentuate Generation Z's strengths. Such strategies are needed in a time when clinical education may be limited.

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