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Generation Y Health Professional Students' Preferred Teaching and Learning Approaches: A Systematic Review

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Generation Y Health Professional Students' Preferred Teaching and Learning Approaches: A Systematic Review

Abstract

Generation Y or Millennials are descriptors for those born between 1982 and 2000. This cohort has grown up in the digital age and is purported to have different learning preferences from previous generations. Students are important stakeholders in identifying their preferred teaching and learning approaches in health professional programs. This study aimed to identify, appraise, and synthesize the best available evidence regarding the teaching and learning preferences of Generation Y health professional students. The review considered any objectively measured or self-reported outcomes of teaching and learning reported from Generation Y health professional student perspectives. In accordance with a previously published Joanna Briggs Institute Protocol, a three-step search strategy was completed. Two research articles (nursing and dental hygiene students) and three dissertations (nursing) were critically appraised. All studies were cross-sectional descriptive studies. A range of pedagogical approaches was reported, including lecture, group work, and teaching clinical skills. Based on the Joanna Briggs Institute levels of evidence, reviewers deemed the evidence as Level 3. Some generational differences were reported, but these were inconsistent across the studies reviewed. There is, therefore, insufficient evidence to provide specific recommendations for the preferred educational approaches of health professional students and further research is warranted.

Keywords

Teaching and Learning, Generation Y students, Millennials, Health Professions

Credentials Display and Country

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The goal of health professional education is to produce competent graduates who are eligible for registration with a regulatory body. Universities, therefore, aim to provide high quality programs designed to develop students' knowledge and skills and the professional behaviors that are essential for practicing as a health care professional. Students are important stakeholders in the evaluation of the quality of programs, course content, and teaching and learning activities. Researchers have claimed that the student group called Generation Y has unique perspectives and preferences in regard to teaching and learning activities in third level education (Prensky, 2006; Shaw & Fairhurst, 2008; Twenge, 2009).

Generation Y is a stereotypical descriptor for most undergraduate students in Australian Universities (Sternberg, 2012). Generations have been defined as the GI Generation (1901-1924), the Silent Generation (1925-1942), the Baby Boomer Generation (1943-1960), Generation X (1961-1981), Generation Y (1982-2002 [also known as the Millennials]), and Generation Z (2003 onwards) (Prendergast, 2009). The sociologist Karl Mannheim posited that each generation has a unique view of the world, as each generation will have lived through the same social and historical events during their formative years (Mannheim, 1952). Although every member of a specific generation will not have experienced the exact same events, they will have experienced the same mechanics of society, and therefore it is postulated that each generation will have a shared awareness that creates generational personality traits (Glass, 2007; Twenge, 2009). Subsequently, social commentators contrived both the generational labels and generational groupings in westernised countries.

One shared experience from an early age for those classified as Generation Y is the accessibility of technology, including the internet, video or computer games, mobile phones, and social networking. It is argued that one consequence of this integration of technology into their daily lives is that they think and process information differently. Prensky (2001) referred to these students as "digital natives" (p. 1). While technology has had an impact on all generations, Prensky called older generations "digital immigrants" (p. 2), arguing that this group maintains traditional learning styles that are enhanced, rather than molded, by technology. Prensky concluded that "today's students are no longer the people our educational systems were designed to teach" (p. 1).

Counter arguments for considering a generational perspective in tertiary education include that this perspective is not representative of all students in undergraduate programs (Sternberg, 2012). Bennett, Maton, and Kervin (2008) contended that generational personality traits are more popular culture than a well researched phenomena. Blauth, McDaniel, Perrin, and Perrin (2011) argued that to take a generational perspective could be considered ageism. Nevertheless, these authors do acknowledge that there is some evidence to support a difference in attitudes to work among generations. Codier, Freel, Kamikawa, and Morrison (2011) reported no difference in emotional intelligence between generations of nurses. Turner Thammasitboon, and Ward (2012), however, revealed that there was a difference in learning styles in medical students,

with Generation Y students showing a decrease in preference for reading and reflection. Differences have also been reported in the learning styles of medical students from different generations (Borges, Manuel, Elam, & Jones, 2006). Generation Y students scored higher than students from other generations on rule consciousness, emotional stability, and perfectionism. In a later study, Borges, Manuel, Elam, and Jones (2010) reported that Generation Y medical students had a higher predilection for achievement and affiliation. Generational differences have also been reported in occupational therapy. Practice educators and managers confirmed that most considered that there is a Generation Y student or worker, and that this group requires both different teaching and learning approaches as well as different management strategies. But one strength of this group is their ability with technology (Hills, Boshoff, Gilbert-Hunt, Ryan, & Smith, 2014; Hills, Ryan, Smith, & Warren-Forward, 2012; Hills, Ryan, Warren-Forward, & Smith, 2013).

The generational preference for technology has resulted in educators promoting that innovative teaching and learning technologies are now essential for 21st century education (Billings, Skiba, & Connors, 2005). Indeed, studies have reported that nursing students value the use of technology, including devices such as personal digital systems or clickers (Revell & McCurry, 2010), and online learning, all of which results in more accessible and flexible programs (Billings et al., 2005). In some health professions, however, there are indications that this may not meet the preferences of Generation Y students. Two surveys of health professional students revealed that students did not prefer online courses but did prefer blended courses, or those with both face-to-face and online formats (Henry & Gibson-Howell, 2011; Walker et al., 2006). Online learning often involves group work. Group work is identified as a Generation Y student preference due to the students' global connectivity and experience of gaming. Generation Y dental hygienist students reported preferring group work, but the students preferred to pick their own work groups rather than be assigned group members by faculty (Henry & Gibson-Howell, 2011). Generation Y nursing students, however, reported that they preferred lectures to group work, and that group work was not a preferred teaching method (Walker et al., 2006). While taking a generational perspective has been criticized as irrelevant in contemporary education, these studies have indicated that Generation Y health professional students do have a unique perspective on their preferred teaching and learning styles. As universities are committed to excellence in teaching and learning, it is incumbent to investigate and evaluate Generation Y health professional student views of the most effective teaching and learning strategies to inform course leaders and curriculum designers of health professional programs.

Initial searches in the Cochrane Library, the Joanna Briggs Institute Library, and the CINAHL, Medline, and PROSPERO databases indicated that no systematic review existed or had been underway to explore the teaching and learning preferences of Generation Y health professional students. Therefore, this systematic review will help to inform educators about the preferred teaching and learning activities of Generation Y health professional students and potentially contribute to the development of high

quality teaching and learning resources and curricula. The objectives of this review were to identify, appraise, and synthesize the best available evidence regarding the teaching and learning preferences of Generation Y health professional students.

Research Question

The research question addressed by this study was: "What teaching and learning strategies do Generation Y health professional students prefer?"

Method

Criteria for Considering Studies

The systematic review was conducted according to priori methodology outlined in a protocol that was peer-reviewed and published on the Joanna Briggs Institute (JBI) database of systematic review protocols (Hills, Boshoff, & Jewell, 2013). This protocol defined the objectives of this review, delineating inclusion and exclusion criteria, data extraction, and synthesis methods. The presence of a protocol is important in restricting the reporting of bias. This review, therefore, considered studies that included Generation Y health professional students enrolled in tertiary education programs. Health professions included in this systematic review were medicine, nursing, physical therapy, occupational therapy, speech pathology, medical radiation science, nutrition and dietetics, oral health, and podiatry. The review considered any randomized controlled trials (RCTs); in the absence of RCTs, other research designs, such as nonrandomized controlled trials, before and after studies, and descriptive/case series were considered for inclusion. The review considered any objectively measured or self-reported outcomes of teaching and learning that related to the attainment of skills, knowledge, attitudes, and practice competence. Other educational outcome measures, such as student satisfaction, student engagement, and attitudes or perceptions toward the teaching and learning process were also considered.

Search Strategy

The search strategy was developed to find both published and unpublished studies, limited to the English language, and restricted to January 2000 through April 2014. A three-step search strategy was used. First, an initial search of two databases was completed to identify key words, such as teaching and learning, student views, student preferences, 21st century learner, online and on-line learning, avatar, group work, web 2.0 technology, educational preferences, and social networking. Each of the above terms were then searched, preceded by the terms intergenerational, Generation Y, Gen Y, Net Generation, Millennial*, Generation Next, Digital Generation, Next Generation, and Generations.

Second, 15 databases were systematically searched using the key words. These were (a) Academic Search Complete, (b) AMED, (c) CINAHL, (d) Cochrane Database of Controlled Clinical Trials, (e) Dissertations and Theses, (f) EMBASE, (g) ERIC, (h) MEDLINE, (i) ProQuest Nursing Journals, (j) PROSPERO, (k) PsycINFO, (l) Scopus, (m) Web of Science, (n) Informit, and (o) Trip 15 Google Scholar. Last, the reference lists of all identified reports and articles were hand searched for additional studies. Table 1 shows detailed descriptions of the search strategy in MEDLINE.

Table 1

Search Strategy in MEDLINE

Set #	Search String	Results
1	generation y.mp	73
2	next generation.mp	12099
3	net gen*.mp	200
4	digital gen*.mp	285
5	gen y.mp	7
6	millenial*.mp	11
7	generation next.mp	13
8	1 or 2 or 3 or 4 or 5 or 6 or 7	12629
9	(teaching and learning).mp	19486
10	Teaching/	42020
11	student view*.mp	90
12	student preference*.mp	68
13	21st century learn*.mp	7
14	(online or on-line) adj learn*).mp	517
15	avatar*.mp	293
16	(groupwork or group work).mp	814
17	"web 2.0".mp	350
18	social network*.mp	7363
19	Social Media/	738
20	*Education/	8178
21	9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20	67876
22	exp Students, Health Occupations/	45179
23	(student* adj5 (medic* or nurs* or physio* or oral health or podiatry or speech pathology or medical radiation science* or MRS or radiology or nutrition or dietetics or OT or occupational therap*)).mp	59559
24	Education, Medical, Undergraduate/ or Education, Nursing, Associate/ or Education, Nursing, Diploma Programs/ or Education, Public Health Professional/ or Education, Nursing/ or Education, Pharmacy/ or Education, Medical/ or Education, Dental/ or Education, Nursing, Baccalaureate/	124310
25	22 or 23 or 24	160751
26	8 and 21 and 25	49
27	limit 26 to english language	48
28	limit 27 to yr="2000 -Current"	42

Data Collection

Data were extracted from the papers in the review using the standardized data extraction tool from the JBI. The extracted data included specific details about the participants' demographics and the sample size, study methods, interventions, number and reasons for withdrawals and dropouts, and any outcomes of significance with regard to the aim of the review.

Data Synthesis

It was planned to statistically pool quantitative papers in a statistical meta-analysis with the odds ratio (for categorical data) and weighted mean differences (for continuous data) and their 95% confidence interval calculated for each analysis. However, the heterogeneity in the studies identified made the application of a standard chi square analysis impossible. There were no comparable randomized control trials

found on this review topic, and, therefore, the quantitative data could not be statistically combined for meta-analysis. As a result, the extracted data were synthesized into a narrative format.

Results

Description of the Studies

The search identified 2,237 potentially relevant articles. After reviewing the titles and abstracts and removing duplicates, 2,205 were excluded on the basis that they did not meet the inclusion criteria. The remaining 32 studies were deemed potentially relevant to the topic based on the titles and abstracts. The full text of each of these papers was then checked and a decision made to include the paper for data analysis or exclude the paper from the next stage of assessment. After a full text review, an additional 22 studies were excluded, as they did not meet the inclusion criteria. The remaining 10 papers were taken forward for critical appraisal. Following the critical appraisal of methodological quality, it was determined that five papers did not meet the established criteria for quality. Five papers considered to be of acceptable quality for inclusion remained. The details of the selection process are presented in the PRISMA flowchart (see Figure 1).

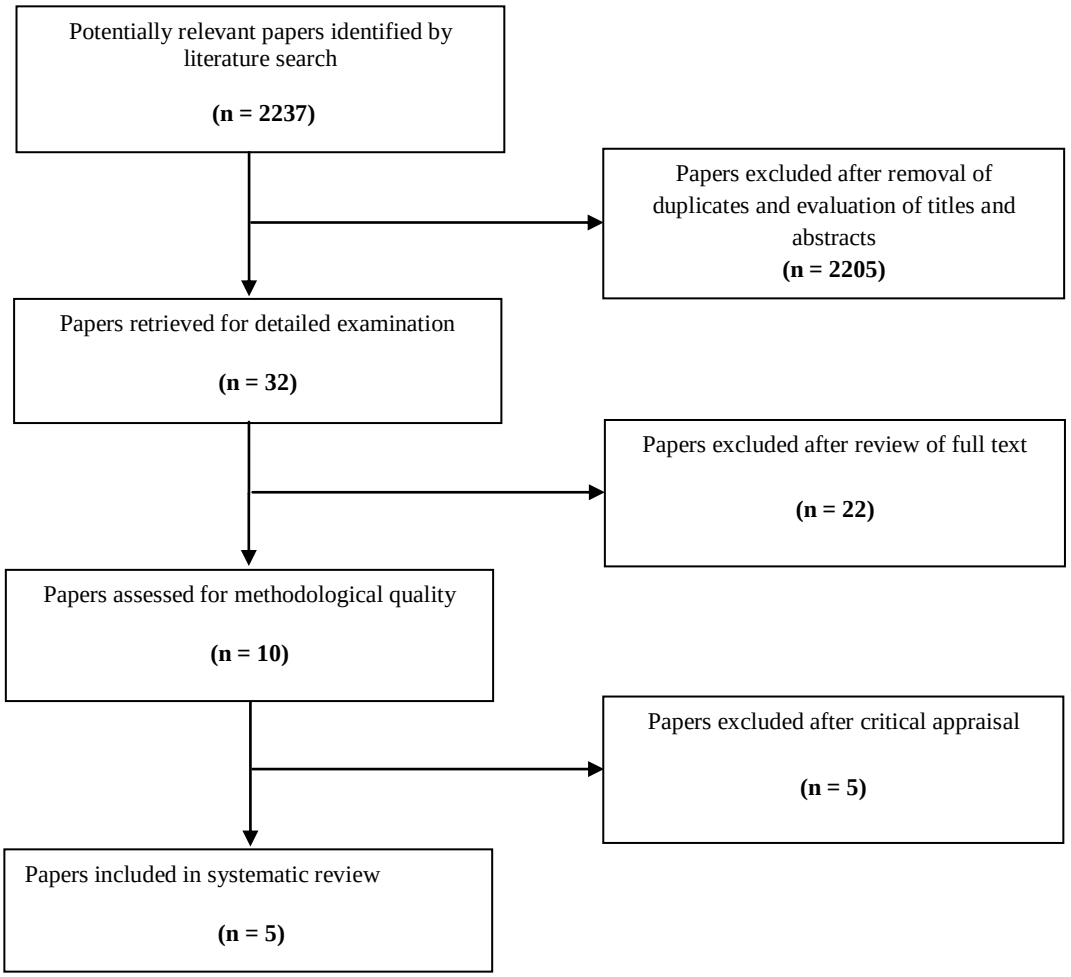

Figure 1. PRISMA flowchart detailing identification and selection of studies for inclusion in the review.

Description of Excluded Studies

The most common reason for exclusion of quantitative studies was issues with methodological quality, such as inadequate presentation of analysis, no reporting of specific generational age of student respondents, and no reporting of students' preferences or views regarding teaching and learning approaches.

Description of Included Studies

The five studies were classified as cross-sectional descriptive studies. The method of data collection was questionnaires, in which participants rated the items on a scale or ranked the items in hierarchical order. Three were theses (Delahoyde, 2009; Furst, 2011; Kitko, 2012), and two were research articles (Henry & Gibson-Howell, 2011; Walker et al., 2006).

Methodological Quality

Two reviewers independently assessed the methodological quality of the selected papers using the JBI Critical Appraisal Tool for Quantitative Studies. However, this tool is designed for clinical studies rather than educational studies; therefore, not all of the appraisal questions were directly applicable to this review. Due to the cross-sectional nature and the convenience sampling method used in the included studies, two of the nine questions in the critical appraisal tool were deemed not applicable. The first question related to selection of cases and controls and the second question related to sufficient follow-up period. The wording of questions 1 and 2 was amended for educational studies. The remaining five questions were considered relevant to the critical appraisal and evaluation of the methodological quality of the studies (see Table 2).

Table 2

Critical Appraisal Results for Included Studies using the Modified JBI-QARI Critical Appraisal Checklist

	1. Is the sample representative of the population health professional students?	2. Are the participants at a similar point in their university studies?	3. Are confounding factors identified and strategies to deal with them stated?	4. Are outcomes assessed using objective criteria?	5. Were the outcomes of people who withdrew described and included in the analysis?	6. Were outcomes measured in a reliable way?	7. Was appropriate statistical analysis used?
Delahoyde (2009)	1	1	2	1	2	1	1
Furst (2011)	1	1	2	1	4	1	1
Henry & Gibson-Howell (2011)	1	1	1	4	2	1	1
Kitko (2012)	1	1	2	1	4	1	1
Walker et al., (2006)	1	1	2	1	4	1	1

Note. 1 = Yes, 2 = No, 3 = Unclear, 4 = N/A.

Generally, the five included cross-sectional descriptive studies were of moderate methodological quality. Based on the JBI Levels of Evidence, the level of evidence in this systematic review was categorized as Level 3 evidence.

Participants

The participants in the studies were obtained from two professions. Four of the studies included nursing students and one study included dental hygiene students. Three of these four studies also collected data from faculty members; however, this data was excluded from this review. The number of participants for each study is listed below.

- Nursing students (n = 329) and 38 Faculty (Delahoyde, 2009).
- Nursing students (n = 244) and 45 Faculty (Kitko, 2012).
- Nursing students (n = 267) (Furst, 2011).
- Nursing students (n = 134) (Walker et al., 2006).
- Dental hygiene students (n = 90) and 12 Faculty (Henry & Gibson-Howell, 2011).

Sampling and Location

The authors of the five papers all appeared to be academics teaching in undergraduate health programs. Sampling was not specifically reported in the research articles by Henry and Gibson-Howell (2011) and Walker et al. (2006). As these researchers targeted undergraduate students in one university in the United States, it could be deduced that the sample was one of convenience, as the participants would have been accessible and in the proximity of the researchers. Purposive sampling was used by Delahoyde (2009) from five private colleges in the Midwestern United States. Purposeful criterion sampling was also used by Kitko (2012), who sampled undergraduate nursing student participants from four schools in Pennsylvania. Furst (2011) was the only researcher to use stratified random sampling, seeking 20% of the 1,238 student population in one nursing college in the Western Cape Province of South Africa.

Teaching and Learning Approaches

The following teaching and learning approaches or pedagogical methods were examined in the studies:

- Lectures (Delahoyde, 2009; Furst, 2011; Kitko, 2012; Walker et al., 2006).
- Group work (Delahoyde, 2009; Furst, 2011; Henry & Gibson-Howell, 2011; Kitko, 2012; Walker et al., 2006).
- Lecture versus group work (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006).
- Self-directed learning (Delahoyde, 2009; Henry & Gibson-Howell, 2011; Kitko, 2012).
- Web-based learning (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006).
- Case stories and case study (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006).
- Clinical skills practice (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006) and class attendance (Henry & Gibson-Howell, 2011).
- Technology and visual aids, such as PowerPoint presentations and video clips (Delahoyde, 2009; Furst, 2011; Kitko, 2012).
- Classroom structure (e.g., handouts, classroom structure encouraging peers to follow class rules, grade is all that matters,

knowing the professor by name) (Delahoyde, 2009; Furst, 2011; Henry & Gibson-Howell, 2011; Kitko, 2012; Walker et al., 2006).

- Service Learning (Henry & Gibson-Howell, 2011).

Outcome Measures

One of the research papers used the Walker's Teaching Method Survey (WTMS) to investigate the teaching and learning preferences of one cohort of nursing students from different generations (Walker et al., 2006). The WTMS consists of 30 items developed to measure students' teaching and learning preferences for certain teaching methods as well other variables, such as classroom structure preferences. The tool was piloted and found to have a reliability coefficient (Cronbach's alpha) of .82 (Walker et al., 2006). Subsequently, this study was replicated with modifications to the WTMS in two doctoral theses on nursing students' teaching and learning preferences (Delahoyde, 2009; Kitko, 2012). Delahoyde (2009) modified the WTMS based on a review of literature to include more specific examples of different generational learning preferences, as well as a section on students' top five teaching method preferences. Additional demographics, including year of student, type of program, gender, and identification of prior degrees, were also added to the survey. The survey was named the "Walker/Delahoyde Teaching Method Survey" (WDTMS). The reliability co-efficient (Cronbach's alpha) was .67 for this adapted instrument (Delahoyde, 2009).

Kitko (2012) also administered an adapted version of the WTMS survey in her doctoral dissertation titled "Generational Diversity in Associate Degree Nursing Students: Teaching Styles and Preferences in Pennsylvania". The WTMS survey was adapted using the similar changes as Delahoyde (2009). Kitko (2012), however, also piloted the survey with 50 graduate nursing students to determine validity. Construct validity was determined with interitem correlations using means, variances, and correlations from the pilot data. Kitko (2012) advised that no items were excluded from the pilot version, but three items were revised to enhance clarity. Multivariate statistics with factor analysis was used to demonstrate construct validity. Subscale scores ranged from 1 to 5 (M = 4.6, SD = .39). Seventy-eight percent on the interitem correlations fell between .30 and .70, thereby meeting the criteria for new scale development. The reliability coefficient (Cronbach's alpha) was .82.

The fourth paper was a Master of Nursing Science thesis that examined the teaching and learning preferences of nursing students (Furst, 2011). The researcher developed a self-administered questionnaire based on the literature and his or her own teaching experience. The 30 Likert scale type items evaluated the effectiveness of teaching methods from student perspectives. The questionnaire also consisted of 15 demographics items and three open-ended questions. The instrument was piloted on 10% of the student cohort (N = 25) and sent to experts for review, and no amendments were required. The reliability coefficient (Cronbach's alpha) varied between .89 and .94.

The final paper reported on the teaching and learning preferences of dental hygiene students (Henry & Gibson-Howell, 2011).

Outcomes were measured using the McCargar's Survey Instrument of "Role Expectations," which was adapted by adding items pertaining to technology, group work, and millennial characteristics (McCargar, 1993). The number of new questions was not identified in the paper. The authors reported that 20 questions were selected from the original McCargar survey, which related to group work and technologies. McCargar (1993) originally established the validity of the survey in consultation with experts and a pilot, and the reliability co-efficient (Cronbach's alpha) was .77. The authors reported that since minimal changes were made to the instrument, its validity and reliability was presumed to be the same as the original McCargar tool. This claim may be questionable, however, as details of the exact number of changes to the instrument are not reported and the instrument was not published in the article.

Results

Lecture

Face-to-face lectures are the predominant format of health university education, particularly for health professional students. Four (Delahoyde, 2009; Furst, 2011; Kitko, 2012; Walker et al., 2006) of the five studies reported findings in relation to students' preferences regarding lectures. Walker et al. (2006) conducted a study to specifically examine differences between nursing students (N = 164) of Generations X and Y regarding their preferences for teaching methods. The findings revealed no significant differences between the two generations of students. However, they indicated that students from both generations (83%) reported a preference for lectures, compared with group work or web-based learning.

Furst (2011) reported no generational differences between students' preferences for the traditional (green/whiteboard) lecture (N = 267) and revealed that 49% of Generation X and Generation Y students (N = 131) found the traditional lecture to be very helpful for their general academic performance. Generation Y students strongly preferred the use of boards and overhead transparencies, particularly when the content was summarized and presented in a way that is easy to understand. Delahoyde (2009) and Furst (2011), however, reported that Generation X students had a higher preference for traditional lectures than Generation Y students. This result was reported as significant (p = .038). Kitko (2012) reported that lecture was the most preferred teaching method by Generation Y students (M = 2.78, SD = .932).

Group Work

Group work is a teaching and learning strategy that involves students working in small teams with their peers to achieve specific learning objectives. The aim of this approach is to provide practice and preparation for the development of teamwork skills and behaviors that are needed in the workplace (Beccaria, Kek, Huijser, Rose, & Kimmins, 2014). All five studies reported mixed findings with differences regarding Generation Y student experiences and preferences regarding group work. Delahoyde (2009) reported that Generation Y students placed a higher level of importance on group assignments with peers during class time than Generation X students. This difference was statistically significant (p = .001). In addition, Delahoyde (2009) identified

that Generation X students preferred group discussion more than Generation Y students. Kitko (2012) reported no difference between Generation Y and Generation X students regarding preference for group work, but found that when students were asked to identify their most and least preferred method of teaching and learning, group work in class was identified in both categories, and group work outside of class was ranked ninth in the least preferred category. Alternatively, Henry and Gibson-Howell (2011) found no difference between generations in relation to group work. Walker et al. (2006) and Furst (2011) found that Generation Y students did not prefer group work, either during class or outside of class, unless for material that was difficult to understand.

Lecture Versus Group Work

Three studies (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006) reported results of comparison of preferences between lecture and group work among different generations. Walker et al. (2006) reported that the majority of students from both Generations X and Y preferred lectures over group work (p = .804). Kitko (2012) reported that the majority of students preferred lectures to group work, and that the least preferred teaching method was group work outside of the classroom. But this preference was slightly higher for Generation Y students (M = 2.141, SD = .946) than for Baby Boomer students (M = 2.05, SD = .759). Conversely, Delahoyde (2009) reported a statistically significant difference between generations, finding that lecture versus work with peers on an in-class assignment as a teaching method was more preferred by Generation X students compared to Generation Y students (p = .021).

Self-Directed Learning

Self-directed learning is an approach in which students take the initiative for their learning needs with or without the help of their peers or educators. This approach has been advocated as a way to develop independent learning competence and a sense of responsibility (Merriam, Caffarella, & Baumgartner, 2012). Four of the studies (Delahoyde, 2009; Henry & Gibson-Howell, 2011; Kitko, 2012; Walker et al., 2006) explored the preferences with regard to self-directed learning. Walker et al. (2006) reported that students from both generations prefer to have material to read in advance of a lecture, but this finding was not statistically significant (p = .989). Kitko (2012) reported a significant difference (p = .004) between generations regarding self-directed learning, noting that Baby Boomer students reported that they needed little motivation to study and considered themselves self-directed learners to a greater extent than Generation X and Generation Y students. Henry and Gibson-Howell (2011) stated that both generations were in agreement regarding accepting responsibility for their own learning, but Generation X students agreed more strongly that students should accept responsibility for their own learning (p = .050). Delahoyde (2009) revealed that Generation X students had a higher preference for reading the assignment before class while Generation Y students had a higher preference for reading the assignment after class.

Web-Based Learning

Web-based learning, also known as online learning or e-learning, includes some form of

online course content. Three studies (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006) explored various web-based teaching and learning approaches, including discussion forums, video conferencing, and live lectures (video streaming). Web-based learning may also be augmented by extra resources, such as printed course materials. Walker et al. (2006) reported that the majority of students (90%) from both Generation Y and Generation X did not indicate a preference for any type of web-based learning or a combination of web-based courses with classroom study. According to Walker et al. (2006), these results reinforce students' preferences for face-to-face teaching methods, such as lectures. Delahoyde (2009) also reported that both generations of students indicated an extremely low preference for a totally web-based course of study, preferring a combination of web-based and face-to-face study. These findings are supported by Kitko's (2012) study, which identified that all generations had a low preference for totally web-based courses of study without classroom meetings (p = .004). The Baby Boomer students had a mean of 1.31 (SD = .717), the Generation X students had a mean of 1.77 (SD = .813), and the Generation Y students had a mean of 1.46 (SD = .675). Statistically significant differences were reported between Generation X and Generation Y students (p = .007) and between Baby Boomer students and Generation X students (p = .033). Taken together, the results from these three studies suggest that Generation Y students have a strong preference for face-to-face educational experiences.

Case Stories and Case Studies

Case stories and case studies are vignettes or patient scenarios aimed at closing the gap between theory and practice (Forsgren, Christensen, & Hedemalm, 2014). These are often used in a range of teaching methods, including lecture and group work, and were reported in three of the articles (Delahoyde, 2009; Kitko, 2012; Walker et al., 2006). Walker et al. (2006) reported that both generations indicated only occasional preferences for case study activities. More than half of all students in both Generation X and Generation Y (59%) indicated they frequently do not learn from case studies. However, the majority of students in both age groups indicated a stronger preference for case study activities or group work when they encounter material difficult to understand. A total of 72% of students in both groups indicated they learned from hearing stories of actual clinical events from faculty (Walker et. al., 2006). Similarly, Delahoyde (2009) reported that Generation Y students had a higher preference for storytelling as a teaching method, but this was not a statistically significant finding. Kitko (2012) identified that case studies were ranked as the second highest most preferred teaching method (52.5%) by nursing students. These results suggest that Generation Y students have a preference for authentic learning experiences based on real clinical events that are relevant to practice.

Teaching Clinical Skills

The aim of health professional education is for students to attain graduating competence and the ability to work safely and effectively. Health education programs, therefore, facilitate this learning by exposure to learning opportunities for clinical skill development in clinical placements, but this learning also occurs in the university

(Meechan, Jones, & Valler-Jones, 2011). Walker et al. (2006) found that 85% of students from Generation X and Generation Y indicated a preference for practicing clinical skills without having lectures on those skills. Walker et al. (2006) suggested that this indicated that students prefer skill demonstration rather than lectures before skill performance. Kitko (2012) revealed that the preference for practicing skills or hands-on material that students have learned was only slightly higher for the Baby Boomer students (M = 3.70, SD .732) than for Generation Y students (M = 3.673, SD = .602) and Generation X students (M = 3.686, SD = .498). Overall, Kitko (2012) reported that the results indicated that the students had the highest preference for practicing skills or using hands-on material (M = 3.67, SD = .594) and the lowest preference for not needing to practice skills learned in lecture (M = 1.40, SD = .644). Delahoyde (2009) reported a slight difference between Generation X and Generation Y students in that Generation X students had a higher preference for skills practice in the classroom, with a slightly higher mean of 3.45 (SD = .709) compared to Generation Y students' mean of 3.36 (SD = .747). In relation to attendance in class, labs, and clinics, Henry and Gibson-Howell (2011) did find a statistically significant difference with non-Millennial students feeling more strongly that students should attend all class sessions (p = .006).

Technology and Visual Aids

Many health professional programs use a range of technologies and visual aids as teaching and learning media. They range from the use of PowerPoint, video, and YouTube to the use of a whiteboard and the provision of handouts. Both Generation X and Generation Y students reported high preference for the use of visual aids, including video, pictures and diagrams, and having concepts drawn on the board (Delahoyde, 2009). Kitko (2012) reported that the use of visual aids was preferred by all generations of students, with 120 (49%) students indicating that they always prefer visual aids, and 70 (29%) students indicating that they frequently prefer visual aids. While there were no generational differences, Furst (2011) reported that many students (45%) found PowerPoint very helpful to their ability to concentrate during the lecture, and 46% of students found PowerPoint moderately helpful with their academic performance in general. Kitko (2012) revealed that the use of visual aids was preferred by students, with a mean of 3.21 (SD = .910), and that 120 (49%) students indicated always preferring visual aids, whereas 70 (29%) students indicated frequently preferring visual aids (Kitko, 2012).

Classroom Structure

Both generational cohorts had an overall high preference for classroom structure and guidance from the professor in two studies (Delahoyde, 2009; Walker et al., 2006). Kitko (2012) revealed that classroom structure was more highly preferred by Generation Y students, with a mean of 3.38 (SD = .647), as compared to Generation X students, with a mean of 3.05 (SD = .756), and the Baby Boomer students, with a mean of 3.15 (SD = .745), with a significant difference between Generation X and Generation Y students (p = .004).

Classroom structure included the importance of "knowing why I am learning material". This was ranked higher by Generation

Y students than by Generation X and Baby Boomer students in one study (Kitko, 2012). Kitko (2012) also reported that Baby Boomer students ranked learning just for the sake of learning ($p < .05$) higher than Generation Y and Generation X students, with a mean of 3.50 (SD = .688) for Baby Boomer students compared to a mean of 2.91 (SD = .668) for Generation X students and a mean of 2.72 (SD = .899) for Generation Y students ($p = .05$). The same study identified that learning just for the sake of learning was preferred by Baby Boomer students more than Generation Y and Generation X students (p = .01) (Kitko, 2012). All students irrespective of generation indicated that they always wanted to know why they are learning new material. According to Walker et al. (2006), this finding "suggests the pragmatic nature of Generation X and Y learners and indicates the need for staff to explain to students why they are learning certain material" (p. 373).

Three researchers included the survey item "the grade I receive is all that really matters". Delahoyde (2009) and Walker et al. (2006) reported no difference between generations regarding this question. Kitko (2012), however, found that Generation Y students had a higher preference for agreeing that the grade received is all that really matters. In addition, approximately 60% of students in the Walker et al. (2006) study indicated an occasional preference for grades to be assigned to all course work, a view shared by all students in Delahoyde's (2009) study.

Researchers also investigated the preference for faculty knowing the students' names. Three of the five studies reported on this topic. Kitko (2012) reported that "learning my name" was ranked as more important by Generation Y students, with a mean of 3.25 (SD = .914), than Generation X students, with a mean of 2.86 (SD = .990), and Baby Boomer students, with a mean of 2.90 (SD = .967). The Tukey HSD post hoc test found a significant difference between Generation Y and X students at the p = .013 level. Both Kitko (2012) and Walker et al. (2006) revealed that the importance of faculty knowing students' names was ranked as highly important by both generations of students.

Henry and Gitlow (2011) reported that non-Generation Y students agreed more strongly than Generation Y students that students should encourage their peers to follow class rules. Regarding the provision of handouts, there were no statistically significant differences between students' preferences; however, students from all generations had a strong preference for handouts that correspond to lecture materials, overheads, or audio-visual materials (Delahoyde, 2009; Kitko, 2011; Walker et al., 2006).

Community Service/Service Learning

Community service, or service learning, is when students are placed in a local service where their work will benefit the community, enhance the academic curriculum, and promote civic responsibility (Duncan & Alsop, 2006). Henry and Gitlow (2011) were the only researchers to look at this aspect of learning. They reported a statistically significant (p = .014) difference between Generation Y dental hygiene students and non-Generation Y dental hygiene students. Generation Y students disagreed that students should be required to perform community service for the purpose of service learning, whereas non-

Generation Y students were in agreement with community service as a course requirement.

Discussion

This systematic review aimed to ascertain the teaching and learning preferences of Generation Y health professional students. With acknowledgement of the limitations inherent in the five studies included, there were some useful findings. The issue of preference for lecture over group work across all generations is illuminating. Particularly as many researchers of Generation Y claim that this cohort do not prefer lecture, as it is considered to be authoritarian, content focused, teacher rather than student centered, and an obsolete method of education (Moreno-Walton, Brunett, Akhtar, & DeBlieux, 2009; Oblinger & Oblinger, 2005; Skiba & Barton, 2006). Twenge (2009) and Skiba and Barton (2006) proposed that lectures be should shorter, broken into smaller chunks, and include more visually rich media, such as YouTube videos, and/or have more interactivity, such as the use of student response clickers. It is suggested that these multi-modal strategies combat student distractibility (Moreno-Walton et al., 2009). Students did, however, acknowledge a preference for these technology enhancing approaches. However, there is a lack of information on the type, content, duration, or interactivity of lectures experienced by students in these studies; therefore, further research is indicated. Students in these studies do appear to indicate a preference for the traditional instructor led, face-to-face learning and appear to prefer lecture over group work.

Group work is the most common teaching and learning method espoused as meeting the needs of Generation Y students, based on the their experience with gaming, participation in social networking, and being connected 24/7. While not all students are experienced gamers or involved in social networking (Hills, Ryan, Smith, & Warren-Forward, 2014; Lynch-Sauer et al., 2011), the desire to work in groups has been identified by many as a teaching and learning preference of this generational group (Oblinger & Oblinger, 2005; Prensky, 2006). Arhin and Cromier (2007) identified that this educational approach is a transformational pedagogy that enables students to voice their opinions, discuss ideas, and develop critical thinking skills, abilities often promoted as essential to the graduating competence of health care students. Nevertheless, in these studies there was a variance in the participants' views of group work with no universal preference reported. Group work as experienced by these students is not defined. There remains, however, a promotion of group work in tertiary education, and online group work is promoted as Pedagogy 2.0 and essential as it develops techno-literacy (Arhin & Cormier, 2007; McLoughlin & Lee, 2008). Certainly for health professional programs, there is an international drive for interprofessional learning. Therefore, group work in this context may be essential to the future quality of patient/client care. Further research is needed in this area regarding how best to deliver group work to promote collaborative knowledge building.

Group work can, of course, be delivered face-to-face but it is also a common feature of online learning, and these studies indicated that students did not favor this modality. This result is contradictory to the literature on Generation Y students, who are reported to be technologically savvy, hence assuming a strong preference for

online approaches. Arhin and Cromier (2007) posited that a technological learning environment can enable non-linear learning, and that this fits well with the Generation Y learning preferences. Kelly (2010) advocated that technology permits multitasking, which is also a generational preference. Evans, Ozdalga, and Ahuja (2016) argued that while Generation Y students can learn using technology alone, they benefit from experiencing coaching and mentoring by working face-to-face with instructors who can stimulate them, challenge their thinking, guide problem solving, and encourage their learning or application of new material. Health professional students may, however, have unique learning needs, as they need to develop clinical skills to become competent practitioners. This may be one explanatory reason for a lack of preference for totally online formats. Further research is indicated to fully explore this area, as universities are progressing to more online formats that bring greater flexibility for students and facilitate distance learning.

Case stories and case studies are often used as a teaching and learning medium to make the link between theory and practice as well as to develop problem solving and clinical reasoning skills. But in these studies there were diverse views about the relevance of these approaches from student perspectives. Indeed, there was ambiguity in definitions of case studies, case stories, and storytelling. This teaching method, however, has been called narrative pedagogy by Arhin and Cromier (2007), who argued that this is an important aspect of teaching and learning for Generation Y students. But the authors added that this pedagogy also encapsulates role-playing, storytelling, simulations, journaling, clinical logs, and teaching approaches, which were not covered in these reviews but are a part of contemporary education. Some of these narrative pedagogies could be supported by experiential or hands-on formats. However, this review identified that Generation Y students did not prefer all types of experiential learning, especially community or service learning. This may be due to the lack of recognition that this type of learning has a positive impact on clinical skill development.

While students preferred to practice hands-on clinical skills, one of the most striking findings of this review was the absence of studies that focused on Generation Y students' preferences about the experiential learning that occurs in clinical practice. In fact, no studies were found that reported on students' preferences in regard to the teaching styles or approaches adopted by mentors, preceptors, or clinical teachers in clinical settings. Developing clinical competence during clinical placement is an essential component of health professional curricula. More research, therefore, is required in this area.

While generational profiles have been used as a framework for investigating the teaching and learning preferences common to each generation, the results of this review neither confirm nor refute taking a generational perspective to explore teaching and learning preferences. Preferences among generational groups were not consistent, indicating that the results could also be cultural, situational, or contextual, but there are sufficient indicators to warrant further research in this area.

Limitations of the Review

The lack of homogeneity of the interventions in the studies indicates that some

caution is necessary when interpreting the review findings. Most studies relied on convenience sampling, and they were all unidisciplinary with nursing students being the majority of the participants. The small samples also limited the power of statistical analysis, and the authors did not always report specific generational student responses. In addition, the use of a survey as a research method did not generate the reasons for the students' preferences in regard to teaching and learning across generational groups. There was a lack of understanding of the exact nature of the students' experiences, in particular lecture and group work. The small number of studies included in the review was another limitation caused by the exclusion of studies that did not explicitly define the respondents' age group.

Conclusion

Students are important stakeholders in reviewing the quality of teaching and learning provided by universities. While many commentators claim that Generation Y students have unique teaching and learning preferences, this assertion is not supported by this systematic review. It is acknowledged, however, that because only five studies were identified for review, generational differences in relation to students' teaching and learning preferences remain inconclusive.

Implications for Practice

There are some indications from this research that Generation Y health professional students may prefer face-to-face teaching and learning approaches over group work or online instruction, but there is insufficient evidence to provide specific recommendations based on the teaching and learning approaches preferred by students in these studies. The lack of clear findings may be because the researchers reviewed only five small, unidisciplinary descriptive studies.

Implications for Research

Further research is needed regarding health professional Generation Y teaching and learning preferences in the following areas: the type, length, and style of lectures; how best to provide lectures; preferences for online learning and techno-literacy; preferences for narrative pedagogies; preferences regarding blended learning and skill development; and Generation Y teaching and learning preferences in clinical or practice education. This type of student-generated research is required for the on-going enhancement of quality practitioner education.

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