

Use of Games in Face-to-face Classroom Teaching in Nursing and Midwifery Education

ABSTRACT

The purpose of this paper is to discuss the use of games in face-to-face classroom/tutorial/clinical learning environments in nursing student education and to provide a useful resource for educators. This paper provides details of a search of electronic databases for an eleven year period (2001-2011), where 21 papers were found which met the inclusion criteria. These articles have been reviewed and analysed. Predominantly the articles were descriptive only gaming strategies, with only five papers being research based gaming strategies. The listed articles would be a useful resource for nurse and midwifery educators who wished to access a collective list of games published in peer-review journals for use in their teaching. Overall, this review has implications for nurse and midwifery educators who are interested in innovative and creative teaching strategies to foster closer lecturer-student relationships, such as the use of games. Additionally, future research on the use of games in teaching is required.

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Background

Using innovative and creative ways to engage nursing/midwifery students can assist in improving student satisfaction in their learning experience. One such example is the use of face-to-face classroom gaming by nurse/midwifery educators.

According to Royse and Newton (2007) innovative techniques such as gaming have been reported to inspire and motivate nursing students as well as promote increased nursing student engagement. By using face-to-face classroom games for educational purposes, frequent and immediate feedback can occur allowing for instant gratification catering for the shortened attention span students have in the current climate (Jaffe, 2011). According to Jaffe (2011) many experienced educators have found the use of games in their face-to-face classroom teaching helps to sustain student interest with the topic content.

However, often nurse (and midwifery) educators come from the clinical setting where they are very experienced in their area of expertise but have little experience of teaching in classrooms in the higher education setting (Jones & Jubraj, 2012). As such, these educators have little experience using gaming in their teaching and tend to resort to traditional models such as lectures and “see one, do one, teach one” which are no longer adequate in today’s learning environment (Yoder-Wise & Kowalski, 2012). Nurse/midwifery educators need to ensure that their teaching strategies are not only contemporary but also that they use evidence based teaching practices. This is especially important as nurses/midwives have a responsibility to ensure they are competent in their nursing/midwifery practice, which includes their teaching and learning practice (ANMC, 2006; Jones & Jubraj, 2012). To pursue competency in their teaching nurses/midwives can be guided by evidence-based practices reported in the literature. Hence, nurse/midwifery educators wishing to use gaming in their teaching need to do so by referring to

the literature to help guide them in using appropriate strategies which have been shown to actively engage nursing/midwifery students. Therefore, the purpose of this paper is to discuss creative and innovative face-to-face classroom games reported in the literature that have been used in nursing/midwifery student education. It is aimed that this information will help guide nurse/midwifery educators in the use of appropriate face-to-face classroom games; stimulate ideas for adapting reported games to their own teaching environment; and to promote further research in this area of nursing/midwifery education. For the purpose of this paper, games are activities guided by rules where players compete with others (Royse & Newton, 2007).

SEARCH STRATEGY

In December 2011, a search of abstracts in the main nursing electronic databases CINAHL, Informat, Medline and Web of Science was conducted for the period between January 2001 to December 2011 (a 11 year period) using the key words *nurs**, *teach** and *gam**.

Inclusion/exclusion criteria

Articles included were: those which provided enough description of the game/s which were used in a face-to-face classroom/tutorial/clinical situation for nursing/midwifery students. Articles excluded were those which described group work activities which did not include a gaming component. Problem-based learning activities with no gaming component and computer games were also excluded as these were not the focus of the review of the literature.

Search outcome

There were 254 potential papers identified. Reference lists of those papers were hand searched to identify other papers which met the criteria. In total, 21 papers met the inclusion criteria. The 21 papers were divided into two categories. Category One included papers which described gaming strategies but were not research studies (descriptive only, $n=16$); and Category Two consisted of papers which described quantitative research based gaming strategies ($n=5$).

RESULTS

Category One – Descriptive only gaming strategies

There were 16 papers which were included in the 'descriptive only gaming strategies' category where some authors described multiple strategies (Table 1). Most of the papers were published prior to 2005 ($n=12$), with only four papers published in the last five years. There were various strategies described which ranged from using activities with props (such as objects that provided visual clues, $n=12$) (Deck, 2009; Kenny, 2003; Metcalf & Yankou, 2003; Mottola & Murphy, 2001; Norman, 2001; Ridley, 2004a, 2004b, 2007), quiz questions (played in teams, $n=10$) (Deck, 2009; Glendon & Ulrich, 2005; LeCroy, 2006; McCahan, 2002; Ridley, 2004a, 2004b), board games (developed for specific topic areas, $n=4$) (Castner, 2010; Masters, 2005; Morton & Tarvin, 2001; Wissmann & Tankel, 2001), and use of puzzles (where pieces/clues needed to be joined to make a whole, $n=2$) (Deck, 2009; Rosner & Rossen, 2002). The descriptive only gaming strategies were mainly used in the discipline stream of maternal/child health ($n=12$), with other discipline streams (infection control, palliative care, urology, aged care, ethics, and drug and alcohol), describing a mix of gaming strategies. Justification for use of games in face-to-face classroom teaching included promotion of: critical and higher order thinking; decision making; involvement and participation; enhanced knowledge and recall; and challenged and motivated students.

Category two – Research based gaming strategies

There were five papers included in the 'research based gaming strategies' category (Table 2). All the papers were published prior to 2007. The low number

of papers found may have been due to only four databases searched or that there was a lack of recent researched papers on gaming strategies for nursing/midwifery students. The research method was pre-test/post-test for all the papers (Cowan & Tesh, 2002; Lever, 2005; Sealover & Henderson, 2005; Stein, Challman, & Brueckner, 2006; Ward & O'Brien, 2005). This method is reported to be the most common for evaluating cognitive learning (Royse & Newton, 2007).

The five papers aimed to investigate if the teaching games used were effective teaching strategies. This ranged from face-to-face classroom quiz games, board games to one study which used a range of games on a 'game day'. There were varying findings reported in the 'research based gaming strategies' papers (see Table 2). This included differences in when the post-test for these studies were administered. The study by Cowan and Tesh (2002) was conducted one day after the game intervention, whereas the post-test administered by Stein, Challman and Kruecker (2006) was conducted a period of time after, although the actual time period was not stated. The other studies either administered the post-test after the game intervention or the time period was not mentioned (Lever, 2005; Sealover & Henderson, 2005; Ward & O'Brien, 2005). A limitation of these studies is that the differences in time periods could have influenced memory recall of students participating which could have impacted on the results.

There were a number of other limitations in the Category Two reviewed studies. Minimal details were provided on the research methodologies used which impacted on assessing the papers for credibility and rigour. Three of the studies only had small numbers of participants (less than 100) and did not describe the selection criteria or the sampling strategy in any great detail (Cowan & Tesh, 2002; Lever, 2005; Ward & O'Brien, 2005). Only two studies used a control/comparison group (Cowan & Tesh, 2002; Stein, et al., 2006). The limitations of all these studies result in questionable validity.

Overall, there were limited quality research studies. This suggests that games were used without objective evaluation of their value. However, feedback of students participating in games as part of their learning is reported positively in the papers (although not statistically analysed).

Table 1. Descriptive only gaming strategies

Author	Title
Castner, J (2010) Journal of Nursing Education, vol.49, no.8, pp.479-480	Precautions and personal protective equipment review: game
Deck, ML (2009) Journal for Nurses in Staff Development (2009), vol.25, no.4, pp.213-214	Instant teaching tools
Glendon K & Ulrich D (2005) vol.44, no.7, pp.338-339	Using games as a teaching strategy
Kenny, LJ, (2003) International Journal of Palliative Nursing, vol.9, no.3, pp.105-112	Using Edward de Bono's six hats game to aid critical thinking and reflection in palliative care
LeCroy, C (2006), Urological Nursing, vol.26, no.5, pp.381-393	Games as an innovative teaching strategy for overactive bladder and BPH
Masters K (2005), Nurse Educator, vol.30, no.5, pp.212-215	Development and use of an educator-developed community assessment board game
McCahan C (2002), Geriatric Nursing, vol.23, no.4, pp.200-202	Improving CAN education with a game show
Metcalf B & Yankou D (2003) Journal of Nursing Education, vol.42, no.5, pp.212-215	Using gaming to help nursing students understand ethics
Morton PG & Tarvin L (2001), The Journal of Continuing Education in Nursing, Vol.32, No.5, pp.223-227	The pain game: pain assessment, management, and related JCAHO Standards
Mottola CA & Murphy P (2001), The Journal of Continuing Education in Nursing, Vol.32, No. 4, pp. 161-164	Antidote dilemma - an activity to promote critical thinking
Norman R (2001), Journal of Nursing Education, Vol.40 No.8, pp.371-374	Experiential learning in drug and alcohol education
Ridley MT (2004), Nurse Educator, Vol.29, No.2, pp47-48	Classroom Games are COOL: collaborative opportunities of learning
Ridley R (2004) Nurse Educator, vol.29, no.4, pp.135-136	Creative collaborative clinical quickies
Ridley RT (2007), Journal of Nursing Education, Vol.46, No.5, pp.203-209	Interactive teaching: a concept analysis
Rosner AM, Rossen ER (2002), Nurse Educator, Vol.27, No.4, pp.155-156	"Puzzle patients" and critical thinking
Wisseman JL, & Tankel K (2001) Journal of Professional Nursing, Vol.17, no.2, pp.101-106	Nursing students' use of a psychopharmacology game for client empowerment

Discipline Stream	Strategy Type	Strategy Name
Infection control	Board game	PPE Review game
Pathology/pharmacology	Puzzle Quiz questions Activity with props	Pain Who wants to be a millionaire? Wheel of misfortune
Clinical	Quiz questions Quiz questions	What's that intervention? Name that drug
Palliative care	Activity with props	Six hats case studies
Urology	Quiz questions	Who wants to be incontinent? Survivor?
Community health	Board game	Community assessment board game
Aged care	Quiz questions	Who Wants to be a Hundredaire?
Ethics	Activity with props	The Ethics Game
Clinical	Board game	The pain game
Clinical/maternal health	Activity with props	Antidote dilemma
Drug & alcohol	Activity with props	I take drugs; step into my shoes
Maternal health	Quiz questions Quiz questions Activity with props Activity with props Activity with props Quiz questions	Millionaire Mania OB Pyramid Name that STD! Newborn Assessment Pictionary The Gestational Age is Right Jeopardy
Maternal/child health	Quiz questions Quiz questions Activity with props Activity with props Activity with props	Sticky Situations Foetal Monitor Strip Dance Contraceptive Grab Bag Skit to the Point Peer Power
Maternal/child health	Activity with props	The laboring shoebox
Clinical	Puzzle	Puzzle patients
Mental health	Board game	The Psychopharmacology R.A.C.E. Game

DISCUSSION

There were a variety of face-to-face classroom games reported in the literature used to engage nursing/midwifery students in their learning. This variety may have accounted for the diverse definitions of gaming put forth. Overall, games were defined as overt instructional or learning formats which involves players, competition across teams goals, have structured rules, have collaborative team effort, includes activities for the participants to perform, has terminating situations, payoffs and uncertainty, as well including challenges, curiosity, fantasy, control, and internally motivates the learner (Elberson, Vance, Stephensoon, & Corbett, 2001; LeCroy, 2006; Metcalf & Yankou, 2003; Sealover & Henderson, 2005). Such an encompassing definition as this is useful for encapsulating the complexity of the gaming concept which may be of benefit for nurse educators wishing to justify the use of gaming in their teaching. This may be necessary as not all nurse/midwifery educators support the use of gaming as a teaching strategy and are critical of the method. This is particularly so if these critics use a traditional teaching method where they expect rationales for why topic content are taught using non-traditional methods (Pesta, 2011). Furthermore, critics may also

pose that the development of games is too time-consuming and not worth the effort (Jaffe, 2011). However, the already developed games in this review are rich enough in description that they may provide useful resources for teaching strategies for nurse/midwifery educators wishing to incorporate or adapt these creative and innovative teaching practices into their classrooms with little time commitment.

Of concern though was that the papers reviewed lacked scientific rigour. The papers provided justification for the use of games in nursing/midwifery student education (supported by theoretical underpinnings); however, there was a notable lack of adequate evidence-based research on the use of face-to-face classroom based games. These findings are consistent with reports that research into the effectiveness of using gaming as a teaching strategy is inconclusive 'due to small sample sizes, poor operational definitions, and other design flaws' (Jaffe, 2011, pp.176-177). This deficit in researched evidence is of concern for nurse/midwifery educators. Nurses/midwives have a responsibility for critical thinking and analysis when accessing and evaluating information and research evidence particularly when considering application to their practice (ANMC, 2006). However, it has been recognised that often

Table 2. Research based gaming strategies

Author	Title	Discipline Stream	
Cowen, K J & Tesh A S (2002) Journal of Nursing Education, vol.41, no.11, pp.507-509	Effects of gaming on nursing students knowledge of pediatric cardiovascular dysfunction	Pediatric nursing	
Lever, KA (2005) Journal of Nursing Education, vol.44, no.10, pp.470-472	Introducing students to research: the road to success	Research	
Sealover, P & Henderson, D (2005), Nurse Educator vol.30, no.6, pp.247-250	Scoring rewards in nursing education with games	Medical & surgical	
Stein, PS, Challman, SD, Krueckner, JK (2006) Journal of Nursing Education, vol.45, no.11, pp.469-473	Using audience response technology for pre-test reviews in an undergraduate nursing course	Anatomy & Physiology	
Ward AK, & O'Brien HL (2005) Journal for Nurses in Staff Development, vol.21, no.1, pp.37-41	A gaming adventure	Psychiatry - child and adolescence	

in nursing/midwifery there are gaps in research based-evidence (Courtney, 2006). Consequently, nurses/midwives are guided by literature reports and available expert knowledge (Courtney, 2006).

According to Brock (2012) learning experts in the health profession are a good source for nurse/midwifery educators as they use educational theory to guide their views and practices. This can be seen in both the 'descriptive only gaming strategies' and the 'researched based gaming strategies' where expert practices and opinions were reported on. In these papers it was reported that gaming was an effective teaching strategy (Cowan & Tesh, 2002; Masters, 2005; Metcalf & Yankou, 2003; Morton & Tarvin, 2001; Ridley, 2007; Rosner & Rossen, 2002; Wissmann & Tinkel, 2001). These opinions were further supported by referring to student feedback (anecdotal and using more formal evaluation processes), to support their use of games. These author/s also reported that student satisfaction with the teaching method and in their learning was overall very positive.

When there is a lack of evidence available to support teaching practices other methods are needed to evaluate teaching effectiveness. Brock (2012) advised

that strategies nurse/midwife educators could incorporate into their teaching practice includes making systematic notes (which are reviewed periodically), about teaching experiences. This strategy was discussed by Kenny (2003) who used a formal reflective model for reviewing their teaching and learning practice. This author highlighted the need for more focus in this area in nursing education as reflective teaching journals can assist in personal development, increased self-awareness and overall enhance professional nursing practice (Kenny, 2003). However, although none of the other papers discussed used a formal strategy they did discuss other less formal reflection strategies. These included sharing of the knowledge gained by disseminating with others in tearoom discussions, communications with faculty, conferences and journal articles. Conversely, as the papers were all published over five years ago, the use of games in nursing student education currently is either not being reported, evaluated or not being disseminated via peer-reviewed journal publications resulting in limited access to nurse/midwifery educators. This highlights the need for more current dissemination of teaching practices to help guide nurse/midwife educators.

Research method	Research aim	Strategy	No. of students	Findings
Quasi-experimental, pre-test/post-test	To investigate if gaming and lecture were more effective than lecture alone.	Quiz questions	85	The post-test scores in the treatment group were significantly higher than those in the comparison group.
Pre-test/post-test	Research Road to success	Board game	35	Significant difference between pre-test and post-test.
Pre-test/post-test	To promote challenges, curiosity, fantasy, and control, internal motivation of the learner by heightening learner interest and caring	Used 4 different game strategies in a 'Game lab' day	107	Significant improvement in post test scores. Student evaluation very positive.
Pre-test/post-test	To determine use of an audio response system	Quiz questions	283	No significant difference between groups. Increased student satisfaction
Pre-test/post-test	To stimulate learning and enhance knowledge retention	Board game	30	The mean anxiety level prior to playing the game was moderate to high. After the game level reduced to tolerable. Positive feedback

CONCLUSION AND RECOMMENDATIONS

In conclusion, it was found that there were various innovative and creative face-to-face classroom games reported on in the literature which are used in nursing/midwifery student education. Even though there are few recent papers and most lacked scientific rigour, these games may still be useful resources for nurse/midwifery educators wishing to incorporate or adapt these engaging strategies in their face-to-face classroom teaching. However, to improve the scholarship in teaching and learning it is recommended that nurse/midwife educators conduct rigorous research on the use of games in their disciplines. This may further support the benefits of using face-to-face classroom games as an effective teaching strategy from an evidence-based perspective. Additionally, it is recommended that nurse/midwifery educators reflect and communicate their use of innovative and creative face-to-face classroom games by sharing more of their experiences which could increase the body of knowledge in this area. By having greater availability of evidence-based teaching resources, nurse/midwifery educators may be able to use more creative and innovative teaching strategies in their classroom teaching which may contribute to greater quality engagement with their students.

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