Analysis of Students' Perceptions of an Interactive LEGO® Leadership Simulation Exercise Used in a BSN Program

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Abstract

It has become increasingly more difficult to provide adequate leadership experience for nursing students as nursing education primarily focuses on nursing skills. The conceptual nature of leadership is difficult to teach to students with limited realistic experience. Alternate teaching strategies are needed to improve the educational experiences for students. This retrospective qualitative analysis provides information on the perceptions of students after implementing a LEGO simulation exercise to teach leadership content in an accelerated baccalaureate nursing program. The students' responses may help to improve future leadership course simulation exercises.

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Simulation is a form of gaming used for educational purposes. Imitating reality permits educators to create specific learning environments that meet set objectives. The controlled nature of the simulated environment can provide safety and practice, while enhancing critical thinking, problem-solving, and motivation.

It has become increasingly more difficult to provide adequate leadership experience for nursing students as nursing education primarily focuses on nursing skills. The conceptual nature of leadership is difficult to teach to students with limited realistic experience. Alternate teaching strategies are needed to improve the educational experiences for students. This study provides information on the perceptions of students after implementing a LEGO simulation exercise to teach leadership content in an accelerated baccalaureate nursing program. The students' responses may help to improve future leadership course simulation exercises. The following treatise discusses the results of a retrospective qualitative analysis that explored students' perceptions of their experience of participating in a LEGO simulation exercise in a nursing leadership course.

Literature Review

A literature search was conducted on the use of LEGO-based simulation in nursing education. The search of EBSCOHost, Gale, and ProQuest databases uncovered no academic literature on this subject in nursing education. Twelve articles were found related to using LEGO blocks to teach in higher education, primarily in business courses (1, 2, 3, 4). LEGO blocks have been used to teach gene sequencing, (5). Medical schools have used LEGO blocks to teaching patient interviewing (6) and patient education (7). Simulation is a highly recommended pedagogical strategy in nursing education (8). Simulation experiences provide focused practice of selected skills, such as leadership, communication, decision-making, conflict management, and problem-solving (8, 9, 10).

Background

As clinical opportunities to practice leadership skills decrease for nursing students, classroom simulation exercises can be useful pedagogical tools. Forty–six students in the accelerated BSN program participated in a LEGO exercise. The objectives of the exercise were to: (1) Identify leadership styles; (2) Practice teamwork; (3) Apply new leadership and follower skills; (4) Analyze the group process; (5) Use problem solving and decision making skills, and (6) Manage limited resources effectively.
The faculty informed the students of the project objectives. Students were assembled in teams of 5-6 people. Each group was assigned co-leaders based on the results of a prior leadership quiz. The leaders were assigned a leadership style opposite to their natural leadership styles. Leaders were provided an index card with a goal for their groups. Each team was commissioned to build a product that met specific dimensions. LEGO blocks were provided to all groups in various amounts. Group leaders presented the “vision” to their teams without revealing the instructions. After 10 minutes of working each group experienced a problem that was orchestrated by the instructors. Within 20 minutes students were to complete their assigned projects and deliver them to the front of the room.

Students independently completed reflection questions (Appendix B) immediately after the exercise. Open group discussions followed the independent critical reflection period. Team members evaluated their team’s ability to work together, the learning experience and their leaders’ efficacy. The leaders also evaluated themselves, the group process, and the product developed. An analysis of the reflection data was conducted using NVivo 8 to evaluate the students’ perceptions of the simulation exercise and their views on how well the simulation experience met the learning objectives.

Sample

The participants were students in the leadership course. Anonymous student written reflection responses (Appendix B) were collected during a 2011 leadership course in southern New Jersey. Their written responses were collected without any personal identifiers.

Data Collection

There are no identifiers on the student records. All submissions were voluntary and anonymous. Data for review was collected as an in-class reflection assignment (See Appendix B). Immediately after the students completed the group project they were asked to complete the written reflection assignment independently. The reflection assignment was given to the 46 students present for the exercise. The information gathered was used in determining how well the exercise met the learning objectives and in identifying the strengths and weaknesses of the LEGO activity (See Appendix A). Students were asked not to write any identifiers on the assignment sheets.

Methodology

Data analysis was conducted using NVivo 8. The reflection responses were typed and posted for students to review their comments and the comments of their peers on the online ANGEL course board. Posting the student responses also provided students the opportunity to correct and clarify their statements. The typed data was uploaded into the NVivo software for coding and analysis. Two faculty members with qualitative research experience reviewed the process, data, and results for verification.

Results

There were 12 co-leaders who participated in the LEGO exercise. Eleven of the 12 leaders reported on their perceptions of the group process.

Vision Sharing

Eleven of the 12 leaders responded to the question related to methods of vision sharing. Team leaders reported that they used verbal communication to convey their vision of the LEGO product to their team members. Sixty-seven percent (8) of the participants reported that they used verbal communication to transmit their vision. Over half (58%) of the participants stated that they shared their vision, but the team collaborated to develop the final vision for their LEGO product.

Assigned Leadership Style

All of the leaders reported that the leadership styles assigned were different from their preferred leadership styles. Nine of 12 leaders provided information on their feelings about using leadership styles that differed from their preferred leadership styles. All of the participants reported difficulty using an assigned leadership style.

Nine of 12 leaders provided information on their views about using leadership styles that differed from their preferred leadership styles. Eight of the leaders reported that the leadership styles assigned was different from their preferred leadership approaches. A leader wrote that the leadership style assigned was not completely foreign from his or her preferred style. All of the participants reported difficulty using a single assigned leadership style. Only one leader stated...
that their assigned leadership style was one of their routinely used techniques.

**Group Acceptance**

Sixty-four percent of the leaders reported that their group accepted them as ‘the leader.’ Denials of acceptance were expressed by two of the team leaders. Nine percent of the leaders were unsure about whether or not their team members accepted them. One leader wrote about partial group acceptance of their leadership. The leaders determined acceptance by their perceptions of how well the team members listened, followed directions, completed the project, and did not resist them. The word ‘listen’ or ‘listened’ was found to be used in half of the leaders’ responses.

**Reflection on the Group Process**

Analysis of the submissions revealed perceived strengths and limitations related to the experienced group processes (See Table 1).

### Table 1: Perceived strengths and limitations of the group process.

<table>
<thead>
<tr>
<th>Group Process Strengths</th>
<th>Areas for Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Group communication</td>
<td>1. Needed more time to plan</td>
</tr>
<tr>
<td>2. Shared ideas</td>
<td>2. More group participation</td>
</tr>
<tr>
<td>3. Sense of belonging to a group.</td>
<td>3. Uncertainty about accurately demonstrating characteristics of the leadership style.</td>
</tr>
<tr>
<td>5. Confidence building – related to perceived success.</td>
<td>5. Limited resources</td>
</tr>
<tr>
<td>6. Simulated realistic group dynamics and work environments.</td>
<td>6. Inadequate space</td>
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<tr>
<td></td>
<td>7. Too many people (team members and leaders)</td>
</tr>
</tbody>
</table>

**Reflecting on Contingency Management**

There were nine responses to the question “How did you feel when the problems commenced and what did you do?” Three leaders described a difficult time adjusting to contingencies. Two of the three leaders discussed their feelings. They reported feeling “bad, useless and frustrated.” The third leader expressed hostility from the team members.

Sixty-seven percent of the responses were positive. The leaders wrote about their successful team and satisfaction related to their final product. Half of the these leaders explained that they had “no problems.” The response ‘no problem’ was equated with positive team results and skilled communication skills between team members. The other three leaders acknowledged that the groups were effected by the unexpected contingences, but pulled together to revise plans and respond to the situation.

**Leader Challenged**

Ten of the 12 leaders shared their responses to “Was your leadership challenged?” Seventy
percent of the leaders reported that their leadership was not challenged. Of the leaders who reported that they believed that their leadership was challenged no one shared similar perceptions or rationales. A leader attributed his or her leader challenger to the addition of a new leader. Another team leader reported that the team members rejected and mocked him or her for trying to encourage more group participation.

**Group Data**

The teams were randomly assigned students numbers 1 through 6. The students with like numbers were instructed to form a group. There was no way to ensure that all students complied with this request. The team data was organized by groups labeled 1 - 6. There was one report with no group identified. Thirty-four students were to be team members or followers.

**Team Role Perceptions**

Although roles were not assigned to the team members, the members of the groups self-assigned personal roles. Nvivo review revealed that team members saw themselves as “idea” people or designers, collaborators, decision makers, or as uninvolved. Several members viewed themselves as having multiple roles. General team members appeared to prefer to be referred to as members or collaborators, or contributors, not as followers. Fifteen Nvivo references highlighted that students participating viewed themselves with non-specific roles. References identified that students perceived that they held multiple roles. Six students identified themselves as idea presenters and designers. Only 3 team members referred to themselves as a “follower.” Only two of six students who viewed themselves as design/idea contributors also viewed themselves as manual laborers participating in the building of their product. Six students considered themselves workers/builders. Three team members perceived their role to be decision making. Only two students reported that they were uninvolved spectators.

**Team Communication**

All of the groups reported that they communicated well. Some of the descriptions of communication amongst the group members included: polite, fair, equal voice for member, cooperative, and organized. Democratic processes were noted as students reported that decision making was done through consensus building or majority rule. One team member reported that humor was frequently used in the group to communicate.

**Team’s Perceptions of Strengths and Limitations**

Nvivo coding revealed 20 references related to group perceptions of strengths of the activity and 15 references of perceived limitations. All of the teams reported being pleased with their group’s efforts and communication. Two students stated that the process created feelings of cohesion and unity.

A major limitation reported by 10 of 15 references was related to the quality of the leaders. Specifically, the teams wanted clearer presentation about the task they were to accomplish. Teams wanted leaders to provide structure, role assignment, and motivation. Some team members expressed that they wanted access to the same information that the leaders had related to the teams’ assignments.

Some team members (2) expressed that the group size was too large, which hindered everyone from fully participating. One student stated that the change in leadership was problematic for them and to the group process. One student expressed that the quality of the Lego pieces needed to be improved.

**Group’s Perceptions on Leader Effectiveness**

The three of the six groups had positive reports regarding their leaders’ abilities. Groups who perceived positive outcomes were more likely to report affirmative comments about their leaders. Leaders displaying transformational leadership traits were viewed as group oriented, democratic, and unselfish. Groups perceived transactional leaders useful to keep the team on task, but disconnected and restrictive. Reports of anxiety and increased feelings of failure were reported by groups having authoritarian leaders. The laissez faire leaders and authoritative leaders received negative evaluations consistently. Laissez faire leaders were described as “useless” and “unsupportive.”
Team Response to Contingency

Forty-seven percent (16) of the group members who participated in the reflection exercise reported that there were “no problems.” Collaboration and group cohesion were cited as aids for organized problem solving. All of the participants who reported that no problems were experienced, also reported effective collaboration. Only one of these participants reported cohesion as a positive group trait that helped to facilitate problem management.

Nine respondents (26%) reported that their group responded negatively to contingencies. All nine participants related their negative perceptions to feeling pressured. Six of the nine reported that a lack of leadership support contributed to their inability to deal well with contingencies. Lack of time and difficulty with measurements were also reported.

Discussion

Analysis of students’ reflection responses provided insight into the students’ experiences after participating in the simulated leadership experience using LEGO blocks. As anticipated, themes related to the topics of teams and leaders emerged, aligning with the goals of the LEGP simulation. Unexpected themes that emerged included communication, shared responsibility, perceptions of leaders’ effectiveness, and role perception.

Team

The nursing student participants valued working in groups. Having people to work and share ideas with was connected with perceived unity, belonging, and success. Collaboration and group cohesion were cited as aids for organized problem solving. Participants who reported that no problems were experienced, also reported effective collaboration. Team members who minimally participated were viewed as violators of a group norm.

Team environments provided members opportunities to express themselves and to try their ideas. Leaders depended on the team to develop and finalize the teams’ vision. Most of the leaders permitted the team members to be active participants in decision-making and shared vision creation. One leader wrote, “I listened to the group and put my input where I had input. With the limited amount of LEGOs we had I wanted to hear multiple ideas, and see how other people felt about the task.” Another leader stated, “I was honest with my team in what our needs were and asked them for ideas on ways to accomplish this goal.” Only authoritarian leaders denied the team the ability to participate in idea development and planning.

Leaders

Only leaders reported trying a new role. Reflection statements by leaders unanimously showed that participants were challenged by having to use an unfamiliar leadership style. “... normally I feel more comfortable having more control. It was unnatural to use an assigned leadership style and I’m not sure that I was entirely effective in portraying this style” stated a team leader. Having an assigned leadership style “... felt a little limiting. I like to delegate but also like to listen to other’s ideas. It was completely different and I had a difficult time,” was written by a team leader. Furthermore, team members wanted clear articulation on the tasks they were to accomplish. In addition members wanted leaders to provide structure, role assignment, and motivation.

The leaders viewed the design of the LEGO assignment as authoritative. They reported feeling confined within strict boundaries as a flaw in the Lego Exercise design. One leader wrote, “I was a little annoyed because I would have handled the project...” I preferred having my own leadership style and not having one picked for me,” scribed another team leader. Team leaders wrote that being assigned or forced into a particular role was stressful and made accomplishing their goals difficult. The act of assigning a leadership style was viewed as an authoritarian action by the faculty. Students found the lack of choice related to the assignment of a leadership role to be in direct conflict with the goal of the LEGO exercise.

Communication

All of the groups reported that they communicated well. Some of the descriptions of communication processes included: “polite, fair, equal voice for member, cooperative, and organized.” Democratic methods were noted as students reported that decision making was done through consensus building or majority rule in their teams.
Methods used to communicate contributed to participants’ perceptions of the group process, the project outcome, and overall success of the team. Leaders spoke positively about experiencing contingencies when they believed they had team approval and participation. For instance, one leader wrote, “Made sure everyone is being heard even if they disagreed. Allowed new leaders input but looked for group approval.” Another leader stated, “There were no problems with the group. When faced with structural problems in the project, the group stopped and discussed alternatives. As a leader, I helped guide the discussion.” “Fine, because we talked and figured it out. We all were able to listen to each others ideas,” was affirmed by another team leader.

The instructors’ decision to have leaders withhold the written directions from team members was negatively perceived by some participants. Failure to share information or lack of transparency was viewed as a precursor to poor communication. Perceived lack of transparency from the instructors and the assigned leaders produced feelings of dissatisfaction and decreased motivation.

Responsibility for Outcomes

Team members and leaders used more inclusion statements when they were satisfied with product outcomes. Leaders and members who reported negative outcomes as a result of unexpected problems reported a strong emotional impact, personal efforts to help alleviate to problems, and attempted to protect their egos by assigning blame elsewhere. One leader wrote, “When there were problems, I tried to get the group members to all share a solution and they told me to stop talking because it wasn’t helping them complete the task quickly.” Another participant said, “I felt frustrated and wanted to help but stepped back into my role.” Six of the nine participants reported that a lack of leadership support contributed to their inability to deal well with contingencies.

Perceptions of Leaders’ Effectiveness

Groups who perceived positive outcomes were more likely to report positive comments about their leaders. Transformational leaders were viewed as group oriented, democratic, and unselfish. Students perceived transactional leaders useful too keep the team on task, but disconnected and restrictive. Perceived authoritative leaders increased team members’ anxiety and increased feelings of failure, but were praised for their ability to give clear direction and setting attainable goals. Similarly, laissez faire leaders received negative evaluations. Laissez faire leaders were described as ‘useless’ and ‘unsupportive’.

Role Perception

Several participants who were assigned the ambiguous role of follower, expressed preferences for being identified as members, contributors, or collaborators. The term follower held a negative connotation related to lower personal worth, less power, and inferior ability. As our culture evolves to respect and regard leaders at all levels of organizations, so must our language. Nursing faculty must purposefully select and use terminology that reflects nursing values and culture.

Conclusion

Based on the reflection responses the curricular objectives were met. All students were able to: (1) Identify leadership styles and how they can influence groups and outcomes (2) Practice working in teams; (3) Apply learned leadership and team member skills, (4) Analyze the group processes; (5) Use problem solving and decision making skills, and (6) Handle use limited resources effectively.

Student participants’ perspectives highlighted the strengths and limitations of the simulation exercise. Emergent themes verified that students met the aims of the LEGO activity. These results will be used to improve the LEGO Leadership Simulation Activity (Appendix A) for future students.
References


Appendix A

LEGO Leadership Simulation Activity

Objectives:

1. To identify a variety of leadership styles.
2. To practice teamwork and collaboration
3. To practice applying new leadership and follower skills
4. To analyze the group process – leader/manager and follower roles
5. To use problem solving, decision making, and conflict management strategies

Setting:

This is an organization. Your teams represent departments within the system. Your faculty members are the board of directors. At the end of the assignment you must present your finished product to the Board at the front of the room.

Assignment – (60 minutes):

a. Assemble a team of 5-6 people
b. Each group will be assigned co-leaders based on their leadership quiz results.
c. Leaders will be provided an index card with a goal for their group to accomplish and assigned leadership styles to use
d. The goal is to build a quality product that meets the needs of consumers.
e. After 15 minutes of working each group will experience a problem
   i. Lose of a leader
   ii. Gaining a leader
   iii. Loss group members
   iv. Loss building resources
f. Building last for 20 minutes.
g. Finished product must contain at least one safety feature.

Questions:

1. For Leaders
   a. How did you share your vision?
   b. Was the assigned leadership style different from your preferred leadership style? How did you feel using an assigned leadership style?
   c. Did your group accept you as a leader? How did you know?
   d. Reflect on the group process. What went well? What would you have changed?
   e. How did you feel when the problems commenced? What did you do?
   f. Was your leadership challenged?

2. For Team Members
   a. What leadership styles were used by your assigned team leaders? Be specific.
      i. Leader 1–
      ii. Leader 2
      iii. Leader 3
b. How did you view the effectiveness of your team’s leadership?
c. What role did you play?
d. How did you relate to others in the group?
e. Reflect on the exercise – What went well? What could have been improved upon?
f. How did you feel when the problems commenced? What did you do?

**Group 1**

*Team members are not permitted to see the directions*

Leadership style 1

Leadership style 2

Directions:

Build a sail boat. The structure be built using Legos and it must be no larger than 17cm X 35cm. When your time limit expires please deliver your product to the board of directors.

**Group 2**

*Team members are not permitted to see the directions*

Leadership style 1

Leadership style 2

Directions:

Build a tool shed. The structure be built using Legos and it must be no larger than 17cm X 17cm. When your time limit expires please deliver your product to the board of directors.

**You are only permitted one trip to the Lego bin**

**Group 3**

*Team members are not permitted to see the directions*

Leadership style 1

Leadership style 2

Directions:

Build a bridge for pedestrians to cross over. The structure be built using Legos and it must be no larger than 17cm X 35cm. When your time limit expires please deliver your product to the board of directors.

**You are only permitted one trip to the Lego bin**
**Group 4**

**Team members are not permitted to see the directions**

Leadership style 1

Leadership style 2

Directions:

Build a tool shed. The structure be built using Legos and it must be no larger than 17cm x 17cm. When your time limit expires please deliver your product to the broad of directors.

**Some supplies will be given to you. You are not permitted to go to the Lego bin**

**Group 5**

**Team members are not permitted to see the directions**

Leadership style 1

Leadership style 2

Directions:

Build a bridge for pedestrian to cross over. The structure be built using Legos and it must be no larger than 17cm x 35cm. When your time limit expires please deliver your product to the broad of directors.

**Your supplies will be given to you. You are not permitted to go to the Lego bin**

**Group 6**

**Team members are not permitted to see the directions**

Leadership style 1

Leadership style 2

Directions:

Build a computer desk and chair. The structure be built using Legos and it must be no larger than 7cm x 17cm. When your time limit expires please deliver your product to the broad of directors.

**You are only permitted one trip to the Lego bin**
Appendix B

Reflection Questions

The reflection questions that the students responded to were as follows:

1. For Leaders
   a. How did you share your vision?
   b. Was the assigned leadership style different from your preferred leadership style? How did you feel using an assigned leadership style?
   c. Did your group accept you as a leader? How did you know?
   d. Reflect on the group process. What went well? What would you have changed?
   e. How did you feel when the problems commenced? What did you do?
   f. Was your leadership challenged?

2. For Team Members
   a. What leadership styles were used by your assigned team leaders?
      i. Leader 1–
      ii. Leader 2
      iii. Leader 3
   b. How did you view the effectiveness of your team’s leadership?
   c. What role did you play?
   d. How did you relate to others in the group?
   e. Reflect on the exercise – What went well? What could have been improved upon?
   f. How did you feel when the problems commenced? What did you do?