The Effect of a Geriatric Simulation-Enhanced Interprofessional Education on Health Profession Students

Diane K. Brown
Christine H. Graor
Sheau-Huey Chiu
Lori Kidd
The University of Akron

James A. Grand
University of Maryland

Author's note
We would like to acknowledge the educators who contributed to the design and implementation of the education described in this study conducted at The University of Akron: Mrs. Martha Conrad, Director of Interprofessional Education; Faculty members Mrs. Rita Young, Mrs. Nancy Harris, Dr. Leann Schaeffer, Mrs. Linda McCardle, Dr. Carrie Wissmar, and Mrs. Michelle Boltz.

Recommended Citation
Brown, D.K., Graor, C.H., Chiu, S-H., Kidd, L., & Grand, J.A. (2021). The effect of a geriatric simulation-enhanced interprofessional education on health profession students. *Clinical Simulation in Nursing, 61*, 33-41. https://doi.org/10.1016/j.ecns.2021.09.002

Abstract

Background: Alzheimer's disease is the most common form of dementia, making it urgent to prepare health providers in interprofessional teams to care for those affected.

Methods: An unfolding geriatric simulation-enhanced interprofessional education program was designed using an ACE.S case and breakout activities for an interprofessional group of nursing, social work, speech therapy and nutrition students.

Results: Pre-post education measures revealed a decrease in perceived challenges for interprofessional collaboration, with no change in readiness for interprofessional learning. Satisfaction with the education design was rated positively, and individual education components were rated as valuable.

Conclusions: This study offers educators an effective example of an unfolding active interprofessional geriatric education related to Alzheimer's care.

Older adults over the age of 65 are the fastest growing population in the United States with a 6.3% increase from 2010 to 2019 (US Census Bureau, 2019). Alzheimer's Disease (AD), the most common form of dementia, is ranked the fifth leading cause of death in those aged 65 and over, and third leading cause of death in those over 85 (Kramarow & Tejada-Vera, 2019). Further, 13.8 million Americans are estimated to have AD by 2050 (Hebert et al., 2013). Thus, it is urgent to prepare future health care providers to care for adults with AD.

The complexities of acute and chronic conditions in geriatric care can be challenging, and especially suited for interprofessional collaborative practice (IPCP) (Balogun et al., 2015). An interprofessional collaborative team approach is advocated in the care of older adults and AD (Fazio et al., 2018). Preparing pre-licensed health students to work in collaborative teams can increase competency when entering practice (Hayden et al., 2014). Simulation-enhanced interprofessional education (IPE) is an effective method for teaching IPCP, but the best education design is yet unknown (Decker et al., 2015).

Background

In a review of 33 geriatric IPE studies focused on teamwork outcomes, Fox et al. (2018) found the most common teaching methods were simulation and standardized patients, group presentations, online learning, workshops, and role plays. Research designs varied, and samples ranged from 8 to 4099. Learning outcomes of positive change in attitudes and perception about IPE and IPCP were consistently reported, however no conclusions could be drawn about the most effective teaching or assessment method due to different designs and/or lack of rigor (Fox et al., 2018).

A review of individual studies over the past five years revealed variations in professions, sample sizes, lengths of programs, and education delivery design. Professions

most frequently included were nursing, medicine, pharmacy, physical therapy, physician assistants, and social work, with limited inclusion of nutrition/dietetics or speech therapy. Sample sizes were often less than 50 (DeBrew & Hensley-Hannah, 2017; Kent et al., 2018; Leclair et al., 2018; Stow et al., 2017; Turrentine et al., 2016) with few greater than 200 (Fox et al., 2018; Karpa et al., 2019). The majority focused on measuring specific learning outcomes of knowledge (Davis & Nye, 2017; Karpa et al., 2019; Krumweide et al., 2019; Mulligan et al., 2017), attitudes toward interprofessional teams and/or geriatrics (Gellis et al., 2019; Ginsburg & Baine, 2017; Karpa et al., 2019; Muhammed, 2019), and confidence in caring for the geriatric population (Ginsburg & Baine, 2017; Karpa et al., 2019; Mulligan et al., 2017; Turrentine et al., 2016). Most were cross-sectional, with a minority involving ongoing programming over multiple weeks (Dyrstad & Storm, 2017; Leclair et al., 2018). It became clear there is a need to evaluate geriatric interprofessional education delivered over multiple weeks and to study IPE with inclusion of underrepresented learners such as nutrition/dietetics and speech therapy professions.

Theoretical Framework

Schon's theory of reflection on action guided the development of a novel education program for building competency in geriatric team-based care. According to Schon (1987), the art of reflection on learning allows learners to critically analyze what occurred in an experience and apply meaning in ways that allows them to understand how their actions may have resulted in a particular outcome. The debriefing phase of simulation is application of Schon's theory of reflection on action. When education is designed purposefully with opportunities to guide learners in their reflection, this exercise may be more powerful than the learning experience that precedes reflection. Based on this theory, our education design embedded multiple points of reflection on action as described in methods.

Materials and Methods

A team of seasoned health profession educators created an IPE program for building IPCP competency in health students when caring for the geriatric population with AD. Materials and methods are described for evaluating this program.

Purpose

The purpose of this program evaluation was to determine the effect of a novel geriatric simulation-enhanced interprofessional education (Gero IPE-Sim) delivered over three weeks on nursing, nutrition, speech therapy and social work students' perceptions of (a) readiness for interpersonal learning and (b) challenges of IPCP in care of older adults with Alzheimer's disease.

Setting and Sample

Following IRB approval, the study was conducted at a large Midwest, public, urban university. Inclusion criteria were enrollment in either the undergraduate geriatric nursing course or in the schools of social work, nutrition and dietetics, or speech language pathology. Further, participants had to be available for all education sessions.

Design

The effect of a Gero IPE-Sim program using an unfolding case study and breakout sessions over three weeks was examined with a one-group pre/post-test design. The following questions were addressed:

1. Does an unfolding Gero-IPE Sim affect health profession students' perceptions of (a) readiness for interprofessional learning and (b) challenges of interprofessional collaboration?
2. To what extent are the Gero-IPE Sim session components valued by health profession student participants?

Sampling

A convenience sample of students from nursing, nutrition/dietetics (N/D), social work (SW), and speech language pathology (SLP) was recruited each semester by faculty (Table 1). Students from multiple years were included in the study. The program was required as part of the geriatric nursing course, and students from the other professions were given release from other assignments for participation. Prior to attending the first session, participants gave consent by endorsing an online informed consent granting permission to use survey data to evaluate the education program. Participants were informed of the option to withdraw from survey completion while continuing the education at any time without penalty.

Data Collection

Data collection occurred by cohort at four points between spring semester 2016 and fall semester 2018. Qualtrics software was used to asynchronously collect demographics at baseline, along with pre-education measures of perceptions of readiness for interprofessional learning (RIPLS) and of challenges of interprofessional collaboration (PCIC) prior to accessing resources. Post measures RIPLS, PCIC, and satisfaction with the overall education was measured via online survey after completion of all education. Participant identification numbers were used for matching datasets, and procedures were followed to insure confidentiality. Value of each session component by learners (simulation and breakout sessions) was measured after completion of each day along with rating of learning objective achievement as post-session activities using the learning management system (LMS) quiz function.

Education Design

Standards for best practices in simulation guided development of the simulation component of our education (INACSL, 2016). The “Henry and Ertha” Alzheimer’s dementia unfolding case was chosen from the National League for Nursing (NLN) Advancing Care Excellence for Seniors (ACE.S) online resources (NLN ACE.S, n.d.). Breakout sessions of pre-simulation and post-simulation learning activities (Table 2) complemented each simulation session and was designed by our educator team from nursing, N/D, SW, and SLP. All educators had 10+ years in teaching experience, using IPE with simulation; one the director of IPE simulation at the host health college.

The Gero-IPE Sim program was delivered on three days in 2-hour sessions over three weeks for a total of 6 hours in-person. The program consisted of six components: 1) pre-simulation learning, 2) pre-briefing review of IPCP competencies, 3) simulation role-play with debriefing, 4) breakout learning sessions, 5) daily session debrief, and 6) post-education activities with reflection discussion cues and daily evaluation surveys. Reflection was purposefully positioned at three points based on the theoretical framework in components 3, 5, and 6: post-simulation, post-daily session, and asynchronous online self-reflection via peer discussion board. Synchronous learning included components 2-5; asynchronous learning pre and post-education components 1 and 6.

Logistically, all students began and finished the daily session together, with interprofessional groups rotated through simulation and breakouts by assignment. For example, groups 1 and 2 began together with the simulation session for 40 minutes while groups 3 and 4 were in separate breakout sessions for 18 minutes each, flipping between breakouts midway with time allowed to move. After 40 minutes, groups 3 and 4 engaged in their simulation session and groups 1 and 2 went to breakout sessions (See Table 2). The synchronous session ended with all students together for a daily session debrief.

Pre-simulation Learning

Pre-simulation learning assignments included readings and/or web links about evidence-based geriatric assessments, dementia care, or healthcare team roles. Nursing students were also assigned to prepare medication cards relevant to the simulation case with knowledge to bring to the sessions. Students in non-nursing professions had access to the medication materials online as optional reading.

Pre-briefing: Review of Interprofessional Collaboration Practice Competencies

At the beginning of each live education session, all students were oriented to the Interprofessional Education Collaborative core competencies (2016) and the learning activities of the day (approximately five minutes). In the first session each cohort viewed an 11-minute video-recorded monologue of the patient (Ertha) role-played by a faculty member. The purpose of the monologue was to give students context, an understanding of the patient's life prior to their encounter, and to add fidelity to the experience.

Simulation Role-play with Debriefing

Students were given a written script of the Henry and Ertha ACE.S case (Tagliareni et al., 2012) to read in the simulation and were rotated each week as an observer, professional, or family member (Table 2). The team meeting was a summary of the events of the simulation played out by all disciplines, patient, and family. The simulation lasted 15-20 minutes, followed by 15-20 minutes debriefing led by nursing faculty using 'Debriefing with Good Judgment' framework and standard discussion cues (Rudolph et al., 2006). Debriefing points focused on learning objectives including evaluation of roles, professional scope and skills, teamwork, communication, and team problem-solving.

Breakout Learning Sessions

Learning objectives of breakout sessions aligned with the focus of the weekly simulation, using active learning methods. Students rotated to two breakout sessions (18 minutes each) when not in simulation (Table 2).

Daily Session Debriefing

At the end of each day, all students gathered for a post-session debrief and wrap up (15 minutes). Reflections of learning objectives were guided by standard debriefing cues using an advocacy and inquiry method. Students were also instructed to complete online post-education activities.

Post-education Activities

Online discussion forums were prepared for students to engage in shared interprofessional learning after each live session to elicit reflection of learning across professions. Discussion posts were either voluntary or required by the educators of each profession. Additionally, students were asked to complete the 9-10 item daily education evaluation survey of learning activities and learning objective attainment.

Outcome Variables

Multiple measurements for program evaluation were utilized. Perceptions of readiness for interprofessional learning was measured with a 16-item version of the Readiness for Interprofessional Learning Scale (RIPLS) (Yu et al., 2018). Participants scored each item on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Reliability had been established for the overall scale, as well as for the subscales of teamwork and professional identities (Yu et al., 2018), supporting use of this measure rather than the 19-item RIPLS (Kerry et al., 2018). Higher scores indicate greater readiness.

Perceived challenges of interprofessional collaboration was measured with the 12-tem Perceived Challenges of Interprofessional Collaboration (PCIC), a researcher-created

instrument constructed by an expert in measure development and derived from a content analysis of IPEC qualitative studies (Interprofessional Education Collaborative, 2016). Expert validity was established by an additional content expert on subject matter and IPE simulation learning. Inter-item reliability in a preliminary geriatric IPE-simulation study (*N*=209, 2012-2013 data) revealed acceptable reliability (Cronbach alpha = .89). Participants rate items on a 5-point Likert scale (1=very low difficulty to 5=very high difficulty). Lower scores indicate less challenge with interprofessional collaboration.

Satisfaction with the overall Gero-IPE Sim was measured online post-program completion with a researcher-created 8-item survey with 5-point Likert scales (1 = strongly disagree to 5= strongly agree). Valuing of education components was measured daily (3 days) with a 4 or 5-item researcher-created survey using a 4-point ordinal scale; positive descriptors "Highly Valuable" and "Valuable", negative descriptors "Not Very Valuable" and "Not Valuable at All." On this survey, breakout sessions were evaluated with one item each, and two or three items for the simulation; one each for the video (day 1 only), simulation role-play, and team meeting (Table 2). To evaluate future programming needs, five program learning objectives were rated each day on a 3-point ordinal scale (Not Met, Partially Met, Met). Learning objectives focused on 1) professional roles and responsibilities, 2) professional scope of skills, 3) teamwork abilities, 4) team communication, and 5) team problem-solving.

IBM SPSS Statistics Version 26 was used for analysis. Descriptive statistics were used to describe the sample and variable measures. Data are displayed as means unless otherwise stated. Within-group differences were determined by paired *t*-tests.

Results

Total participants were 291 from four cohorts (spring 2016, fall 2016, spring 2017, fall 2018). For each cohort, 34 to 51 were from nursing, 8 to 15 from N/D, 2 to 8 from SW, and 6 to 8 from SLP, with pre/post completion rates per cohort ranging from 54.2% to 70%. For analysis, 196 participants (67%) completed both pre and post-surveys from four cohorts; they are 52, 40, 49, and 55 respectively. Of the 196, mean age was 23.5 years, and the majority were female, white, junior-level, nursing students (Table 1).

To examine perceptions of readiness for interprofessional learning, scores from the RIPLS were analyzed comparing pre/post total mean scores. Prior to analysis, negatively worded items 10, 11, and 12 were reverse coded. Pre and post Cronbach's alpha for the RIPLS was 0.94 and 0.93 respectively. Mean total scores of RIPLS showed a non-significant change after the education (pre: 4.38, post: 4.34, p=0.30; Table 3). Among individual professions, RIPLS scores were statistically unchanged from pre to post. Nursing participants reported the lowest mean score, with SLP participants reporting the highest mean score. All mean scores were above 4 on a 5-point scale, indicating reported readiness between agree and strongly agree.

To examine perceptions of challenges in interprofessional collaboration, scores from the PCIC were analyzed. Pre and post Cronbach's alphas for the PCIC were 0.89 and 0.95 respectively. Table 3 presents mean PCIC scores for total participants and by profession. Mean PCIC score significantly decreased from pre to post (p< .0001) for all professions with greater decreases in SW and SLP. A decrease in post PCIC score indicates decreased perceived challenges in interprofessional collaboration post-education, the desired change.

Satisfaction with overall Gero-IPE Sim was measured post-education. Average ratings were similar across professions with slightly lower scores in nursing and higher

scores in SW (Table 3). The mean score of 4 indicates the participants "Agree" with the evaluation statements of satisfaction with the education program overall.

Valuing of education session components and achievement of learning objectives were measured with daily surveys. Aggregate results, including all participants who responded (*N*=241-291 per item; 81-100% completion rate from 291 participants), are reported descriptively in Table 4. Simulation components and breakout session evaluation items on a 4-point scale were divided into positive and negative ratings. Of those responding, 91.9% to 98.6% rated each breakout session positively. The monologue video was rated positively by 90.3% of participants, the simulation role-play 92% positively for all three weeks, and the simulation team meeting 91-94% positively each week. The most valued breakout sessions were the sensory, textured foods and liquids, and supplements, although all breakouts scored positively by over 91% of participants.

Results of learning objective achievement ratings used for quality improvement purposes showed little variability across days and cohorts and are reported in aggregate. At the end of the program, the five learning objectives were individually rated as "Met" by 82.8%-92.7% of participants for each cohort (*M*=88.2% "Met" for all objectives). The rating of "Not met" at the end of the program ranged from 0-3.8% (*M*=1.6%), and "Partially Met" ranged from 5.7-19% (*M*=10.1%). Learning objective 5 (Team Problem Solving) rated the highest (*M*=89.8% "Met"), with the lowest rating for Learning objective 4 (Communication) (*M*=86.6% "Met").

Discussion

Findings indicated that readiness for interprofessional learning scored relatively high in the pre-education baseline with no significant change at the end of a multi-week IPE. It is possible that students initially over-estimated their readiness, only to find that their ability to

work with interprofessional groups requires more development. Further, convenience sampling may have constructed a sample positively biased toward interprofessional learning. It is also possible the education did not have an impact on their readiness for interprofessional learning.

All groups showed a significant change in perceived challenges of interprofessional collaboration with pre-education scores between 2-3 (Low difficulty, moderate difficulty) decreasing to scores between 1-2 (Very low to Low difficulty) post-education. Perhaps through the simulation role-playing, students saw positive role modeling of interprofessional collaboration and perceived the process as less difficult to achieve. Reducing perceived challenges to interprofessional collaboration can help prepare students for IPCP in the future.

Overall program satisfaction survey garnered satisfied ratings, indicating a positive experience. Active learning methods were highly valued by learners according to the daily valuation of education components results. All elements of the education design were scored positively by over 90% of participants, indicating high approval. However, the ratings of learner objectives each day showed little variability across days, indicating students' perceptions of meeting objectives changed little from the first day to the end of the program.

This study builds on geriatric IPE research geared toward developing IPCP competencies. Our results were similar to Balogun et al. (2015) who found that 90% of medical and nursing students (*N*=254) demonstrated appreciation for IPE post-education. Karpa et al. (2019) also found positive outcomes among seven professions (*N*=340) in nutrition, nursing, pharmacy, occupational and physical therapy, dental hygiene and medicine following an IPE with standardized patient simulation design including "enjoyment" of the interprofessional simulation, increase in understanding of roles and responsibilities, and valuing of teamwork in patient care. Finally, Brown et al. (2018) reported on a multi-step

geriatric IPE design with 12 different health professions including nursing, SW, N/D, and SLP and others (*N*=136) and found advancements in interprofessional collaborative competencies in pre/post-education comparison ($p < .001$).

Studies using an unfolding case in their designs, including an ACE.S case, have involved only nursing rather than multiple professions. Haley et al. (2017) conducted a randomized controlled trial using a different ACE.S case and found within and between group increases in empathy, patient-centered care, active listening, and self-awareness at 2 and 4-weeks post-education. Kopka et al. (2016) integrated use of social media with an ACE.S case for teaching end-of-life competencies and noted positive qualitative comments. Neither study utilized additional education components such as our breakout sessions.

Schon's reflection on action theory was not directly evaluated as to the effectiveness of the debriefing points in the education; this could be examined in future studies. Anecdotal comments from participants during debriefing included themes, such as "I didn't know that profession did that," and "I realize how important it was to have the whole team together for this patient."

Study limitations included potential differences in fidelity when presenting education from cohort to cohort due to changes in educator participants. This risk was minimized by maintaining written instructions for facilitating each session consistently. For example, standardized reflection cues were used for debriefing, instructions for the breakout rooms were written in detail, and the same role-play scripts were used in every cohort. Convenience sampling may limit generalizability of findings due to possible sample bias. However, all students were informed that participation was voluntary, confidential, and not associated with course evaluation. We could not confirm completion of prebrief readings which may have affected their experience. There was variation in profession proportions by cohort due to size

of classes and recruitment effectiveness, however there was always representation of all professions in each cohort. Differences in participant level in education programs may have influenced outcomes due to varied achievement of profession-specific knowledge. For example, SLP students were graduate level, while others were undergraduate. Social desirability, testing bias, and Hawthorne effect may exist in self-reported pre/post survey data. Also, RIPLS and PCIC surveys were administered online asynchronously which may have affected completion rate. Lastly, we used a newly developed and validated PCIC survey that demonstrated robust reliability in this sample and pilot data, but could be strengthened by use in future studies.

Conclusions

This study offers educators an example of active interprofessional geriatric education about care of AD. Our results showed high readiness for IPCP pre-education and did not reveal this education as a way to further increase readiness. We did however find this education contributed to a decrease in perceived challenges associated with IPCP. Implications may be that student readiness was already at a desirable level, or that they may require more than a single education program to further this outcome. Positive valuation of active learning supports integration of multiple learning approaches in IPE. Additional studies that utilize multiple elements over time are needed to advance the body of evidence for teaching IPCP competencies in geriatrics. Qualitative feedback regarding readiness and challenges of IPCP would help define these elements. Replication of this study using other healthcare professions and other ACE-S cases can add to the validity of these learning resources for interprofessional application and provide direction for future research. Future studies using the 16-item RIPLS instrument would add reliability and validity to this modified scale. In conclusion, we believe that education delivered over time using a variety

of elements is valuable and effective for preparing health students for collaborative practice. Effective education can influence the future practice of health profession students by helping them appreciate the complexity and importance of interprofessional collaborative practice.

Table 2 Summary of Education Components by Day

	Education Details		
Education Component	Day 1	Day 2	Day 3
Ertha and Henry Williams simulation synopsis	Ertha is admitted to Assisted Living for progressing symptoms of Alzheimer's dementia	Two months post admission. Ertha's husband Henry has died one month previous. Grief becomes a new concern.	Six months post admission. Ertha shows some improvement in grief, socialization, ADLs
Simulation events	-Ertha monologue -Nursing shift report -Nursing assessment: Safety and ADL/IADL with Ertha and husband -Nursing referral to SW -SW assessment: Support services, Mini Cognition screen -Team meeting	-Nursing shift report, -SW referral to SLP -SLP assessment: detailed cognitive screen -SLP referral to N/D -Dietician assessment: Diet preferences -Team meeting	-Shift report with nursing, SW, SLP -SLP assessment: dysphagia evaluation -SLP referral to N/D -Dietician assessment: Nutrition and hydration screening -Team meeting
Breakout Session 1 (Leader discipline) Topics	Sensory Simulation (NSG or N/D) -Taste and smell changes -Vision changes -Tactile changes	Cognitive Support Simulation (NSG) -Mini Cognition assessment scenarios -Geriatric Depression Scale assessment scenarios -Delirium vs dementia	Levels of Care Simulation (SW) -Different patient transfer scenarios; Assisted Living, Extended care, Skilled Nursing Facility, and Acute Rehabilitation Costs and services offered at each setting
Breakout Session 2 (Leader discipline)	Hearing Simulation (SLP)	Modified Foods, Fluids, and Mouth care (N/D, SLP)	Nutrition Supplements and Cognitive supports (N/D, SLP)

Topics	-Audiology role -Audiogram and simple hearing screen -Student simple hearing screen experience	-Thickened liquids -Modified textures -Antibacterial mouth care protocol	-Low tech cognitive supports -High tech cognitive supports -Nutrition supplements qualities and tasting experience

Note: (I)ADL (Independent) Activities of Daily Living, SW Social Work, SLP Speech Language Pathology, NSG Nursing, N/D Nutrition/Dietetics.

Table 1 Demographic Characteristics of Participants (*N*=196)

Demographic	*f* (%)
Gender	
Male	44 (22.4)
Female	151 (77.0)
Missing	1 (0.5)
Ethnicity	
White	178 (90.8)
Black	9 (4.6)
Asian	2 (1.0)
Other	6 (3.1)
Missing	1 (0.5)
Year of Education	
Junior	153 (78.1)
Senior	10 (5.1)
Graduate	31 (15.6)
Missing	2 (1.0)
Other IPE experiences	
0	118 (60.2)
1-2	64 (32.7)
3-6	8 (4.1)
7-10	5 (2.6)
Missing	1 (0.5)
Program of Study	
Nursing	127 (64.8)
Nutrition	30 (15.3)
Social work	10 (5.1)
Speech Language Pathology	29 (14.8)

Note: Participants were on average 23.5 years old (SD = 6), range of 19-52. IPE Interprofessional education

Table 3 Outcome Pre/Post and Change Scores by Scale and Profession

Outcome Scale	Pre (Mean ± SD)	Post (Mean ± SD)	Mean Change	*t*	*p*
RIPLS (total)	4.38 ± 0.51	4.34 ± 0.47	- 0.04	1.05	.30
Nursing	4.32 ± 0.47	4.24 ± 0.46	- 0.09		
Nutrition	4.42 ± 0.71	4.49 ±0.44	+ 0.07		
Social work	4.45 ± 0.52	4.43 ± 0.43	- 0.03		
Speech	4.54 ± 0.41	4.61 ± 0.41	+ 0.07		
PCIC (total)	2.26 ± 0.53	1.98 ± 0.37	- 0.28	6.68	< .0001
Nursing	2.28 ± 0.5	2.05 ± 0.59	- 0.23		
Nutrition	2.21 ± 0.57	1.92 ± 0.54	- 0.29		
Social work	2.17 ± 0.68	1.69 ± 0.66	- 0.48		
Speech	2.29 ± 0.59	1.84 ± 0.51	- 0.45		
Satisfaction (total)		4.03 ± 0.66			
Nursing		3.96 ± 0.67			
Nutrition		4.12 ± 0.53			
Social work		4.15 ± 0.62			
Speech		4.02 ± 0.65			

Note: RIPLS: Readiness for Interprofessional Learning, 16-item version. PCIC: Perceived Challenges of Interprofessional Collaboration.

Table 4 Daily Valuation of Education Components (*N*=291)

Education component (Day)	Positive (Valuable/Highly Valuable) *f* (%)	Negative (Not very valuable/Not Valuable at all) *f* (%)
Simulation		
Monologue video (1)	261 (90.3)	28 (9.7)
Ertha Sim (1)	268 (92.1)	23 (7.9)
Ertha Sim (2)	262 (92.3)	22 (7.7)
Ertha Sim (3)	241 (92.3)	20 (7.7)
Team meeting (1)	273 (93.8)	18 (6.2)
Team meeting (2)	259 (91.2)	25 (8.8)
Team meeting (3)	243 (93.1)	18 (6.9)
Breakout sessions		
Sensory (1)	287 (98.6)	4 (1.4)
Audio (1)	282 (96.9)	9 (3.1)
Textured foods (2)	281 (98.9)	3 (1.0)
Cognitive (2)	261 (91.9)	23 (8.1)
Supplement (3)	257 (98.5)	4 (1.5)
Discharge planning (3)	246 (92.8)	19 (7.2)

References

Balogun, S. A., Rose, K., Thomas, S., Owen, J., & Brashers, V. (2015). Innovative interprofessional geriatric education for medical and nursing students: Focus on transitions in care. *QJM: An International Journal of Medicine, 108*(6), 465-471. https://doi.org/10.1093/qjmed/hcu22

Brown, D. K., Fosnight, S., Whitford, M., Hazelett, S., Mcquown, C., Drost, J., Kropp, D. J., Hovland, C. A., Niederriter, J. E., Patton, R., Morgan, A., Fleming, E., Steiner, R. P., Scott, E. S., & Ortiz-Figueroa, F. (2018). Interprofessional education model for geriatric falls risk assessment and prevention. *British Medical Journal Open Quality*, *7*(4), 1-9. https://doi.org/10.1136/bmjoq-2018-000417

Davis, K. D & Nye, C. (2017). Care of the older adult with postoperative delirium: An interprofessional simulation for undergraduate nursing students. *Nursing Education Perspectives., 38*(2), 103-105.

DeBrew J. K. & Hensley-Hannah, S. (2017). Integrating gerontology and community concepts through simulation. *Nursing Education Perspectives, 38*, 360-361.

Decker, S. I., Anderson, M., Boese, T., Epps, C., McCarthy, J., Motola, I., Palaganas, J., Perry, C., Puga, F., & Scolaro, K. (2015). Standards of best practice: Simulation standard VIII: Simulation-enhanced interprofessional education (Sim-IPE), *Clinical Simulation in Nursing, 11*(6), 293-297. https://doi.org/10.1016/j.ecns.2015.03.010

Dyrstad, D. N. & Storm, M. (2017). Interprofessional simulation to improve patient participation in transitional care. *Scandinavian Journal of Caring Sciences, 31*(2), 273-284.

Fazio, S., Pace, D., Maslow, K., Zimmerman, S., & Kallmyer, B. (2018). Alzheimer's Association dementia care practice recommendations. *The Gerontologist, 58*(S1), S1–S9. https://doi.org/10.1093/geront/gnx182

Fox, L., Onders, R., Hermansen-Kobulnicky, C.J., Nguyen, T.N., Myran, L., Linn, B., & Hornecker, J. (2018). Teaching interprofessional teamwork skills to health professional students: A scoping review. *Journal of Interprofessional Care, 32*(2), 127-135. https://doi.org/10.1080/13561820.2017.1399868

Gellis, Z. D., Kim, E., Hadley, D., Packel, L., Poon, C., Forceia, M. A., Bradway, C., Streim, J., Seman, J., Hayden, T., & Johnson. J. (2019). Evaluation of interprofessional health care team communication simulation in geriatric palliative care. *Gerontology & Geriatrics Education, 40*(1), 30-42. https://doi.org/10.1080/02701960.2018.1505617

Ginsburg, L. & Bain, L. (2017). The evaluation of a multifaceted intervention to promote "speaking up" and strengthen interprofessional teamwork climate perceptions. *Journal of Interprofessional Care, 32*(2), 207-217.

Haley, B., Heo, S., Wright, P., Barone, C., Rao Rettigantid, M., & Anders, M. (2017). Effects of using an Advancing Care Excellence for Seniors simulation scenario on nursing student empathy: A randomized controlled trial. *Clinical Simulation in Nursing, 13*(10), 511-519. https://doi.org/10.1016/j.ecns.2017.06.003

Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN national simulation study: A longitudial, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2 Suppl), S1-S64.

Hebert, L. E., Weuve, J., Scherr, P. A., & Evans, D. A. (2013). Alzheimer disease in the United States (2010–2050) estimated using the 2010 census. *Neurology, 80*(19) 1778-1783. https://doi.org/10.1212/WNL.0b013e31828726f5

INACSL Standards committee. (2016). INACSL standards of best practice: Simulation-enhanced interprofessional education (Sim-IPE). *Clinical Simulation in Nursing, 12*(Supplement), S34-S38. https://doi.org/10.1016/j.ecns.2016.09.011

Interprofessional Education Collaborative. (2016). Core competencies for interprofessional collaborative practice: 2016 Update. Interprofessional Education Collaborative.

Karpa, K., Graveno, M., Brightbill, M., Fox, G., Kelly, S., Lehman, E., Salvadia, A., Shaw, T., Smith, D., Walko, M., & Sherwood, L. (2019). Geriatric assessment in a primary care environment: A standardized patient case activity for interprofessional students. *MedEdPORTAL, 15*(1), 1-9. https://doi.org/10.15766/mep_2374-8265.10844

Kent, F., Nankervis, K., Johnson, C., Hodgkinson, M., Baulch, J., & Haines, T. (2018). More effort and more time: Considerations in the establishment of interprofessional education programs in the workplace. *Journal of Interprofessional Care*, *32*(1), 89-94. https://doi.org/10.1080/13561820.2017.1381076

Kopka, J. A., Aschenbrenner, A. P., & Reynolds, M. B. (2016). Helping students process a simulated death experience: Integration of an NLN ACE.S evolving case study and the ELNEC Curriculum. *Nursing Education Perspectives, 16*(3), 180-182. https://doi.org/10.5480/14-1329

Krumweide, K. H., Wagner, J. M. Kirk, L. M., Duval., T. M., Dalton, T., Daniel, K. M.,

Huffman, A. S., Adams-Huet, B., Rubin, C. D. (2019). A team disclosure of error educational activity: Objective outcomes. *Journal of the American Geriatrics Society, 67*(1), 1273-1277.

Leclair, L. W., Dawson, M., Howe, A., Hale, S., Helman, E., Clouser, R., Garrison, G., Allen, G. (2018). *Journal of Interprofessional Care, 32*(3), 386-390. https://doi.org/10.1080/13561820.2017.1405920

Muhammed, Y. (2019). An interprofessional, team based approach to safe patient care through a female veteran in- situ simulation experience. *Journal of the Academy of Nutrition & Dietetics. Supplement A-35.*

Mulligan, R., Gilmer-Scott., Kouchel, D., Nickelson, D., Safavi, A., Drickamer, M., & Roberts, E. (2017). Unintentional weight loss in older adults: A geriatric interprofessional simulation case series for health care providers. *The Journal of Teaching and Learning Resources, 13*, 1063.

Kramarow, E. A. & Tejada-Vera, B. (2019). Dementia mortality in the United States, 2000-2017. *National Vital Statistics Report, 68*(2), 1-29.

NLN ACE.S (n.d.). National League for Nursing Advancing Care Excellence for Seniors. Retrieved from http://www.nln.org/professional-development-programs/teaching-resources/ace-s/unfolding-cases. Accessed January 5, 2016.

Rudolph, J. W., Simon, R., Dufresne, R. L., & Raemer, D. B. (2006). There's no such thing as "nonjudgmental" debriefing: A theory and method for debriefing with good judgment. *Simulation in Healthcare, 1*(1), 49-55.

Schon, D. A. (1987). *Educating the reflective practitioner.* Jossey-Bass.

Stow, J. Morphet, J., Griffiths, D., Huggins, C. & Morgan, P. (2017). Lessons learned developing and piloting interprofessional handover simulations for paramedic,

nursing, and physiotherapy students. *Journal of Interprofessional Care*. *31*(1), 132-135.

Tagliareni, M. E., Cline, D. D., Mengel, A., McLaughlin, B., & King, E. (2012). Quality care for older adults: The NLN Advancing Care Excellence for Seniors (ACES) project. *Nursing Education Perspectives*, *33* (3) 144-149.

Turrentine, F. E., Rose, K. M. Hanks, J. B., Lorntz, B., Owen, J. A., Brashers, V. L., & Ramsdale, E.E. (2016). Interprofessional training enhances collaboration between nursing and medical students: A pilot study. *Nurse Education Today*, *40*, 33-38. https://doi.org/10.1016/j.nedt.2016.01.024.

US Census Bureau. (2019). *United States quick facts dashboard.* Population census 2019. Retrieved July 16, 2020, from https://www.census.gov/quickfacts/fact/dashboard/US/AGE775219

Wen, A., Wong, L., Ma, C., Arndt, R., Katz, A., Richardson, K., Deutsch, M., & Masaki, K. (2019). An interprofessional team simulation exercise about a complex geriatric patient. *Gerontology & Geriatrics Education, 40*(1), 16-29. https://doi.org/10.1080/02701960.2018.1554568.

Yu, T., Jowsey, T., & Henning, M. (2018). Evaluation of a modified 16-item readiness for interprofessional learning scale (RIPLS): Exploratory and confirmatory factor analyses. *Journal of Interprofessional Care*, *32*(5), 584-591.