

PEDAGOGICAL SIMULATION AS A TOOL FOR PROFESSIONAL DEVELOPMENT AMONG INTERNS IN TEACHING

Zuhaira Najjar, Wafa Zidan, & Roseland Da'eem
The Arab Academic College for Education in Israel-Haifa
Israel

Abstract

This study was carried out in a mixed approach of qualitative and quantitative methodology in order to examine the satisfaction of intern-teachers with a simulation-based learning method. It presents participants' perceptions regarding a simulation workshop's contribution to the professional development of beginning teachers. Findings indicate remarkable satisfaction of the participants with the simulation-based learning method. They perceive the simulation as an effective learning method that contributes to acquiring communication skills and assists in conflict resolution and analysis of classroom scenarios. It contributes to their professional development and, therefore, they suggested an increase in their participation in the simulation workshops during their internship process.

Introduction

The use of simulation and research as a means for training professionals is growing in recent decades, mainly in the fields of flying, medicine and senior executive training. Simulation is the imitation of the operation of a real-world process or system over time. The act of simulating something first requires that a model be developed; this model represents the key characteristics or behaviors/functions of the selected physical or abstract system or process (Banks, Carson, Nelson, & Nicol, 2010). The researchers also assert that the model represents the system itself, whereas the simulation represents the operation of the system over time. Simulation is used in many contexts, such as simulation of technology for performance optimization, safety engineering, testing, training, education, and video games (Gray & Rumpe, 2016).

Simulation-based learning is a teaching method integrated with a variety of academic courses, which enables a learner to experience an authentic simulation of educational situations designed in advance according to the goals of the course. Students in the simulation participate in a variety of roles, such as executives, employees, authorities, judges, economists, government members, and various stakeholders. They deal in a controlled manner with dilemma and conflict situations, with different learning modes and unexpected challenging events taken from the professional world.

The National Centre for Simulation in Education in Israel was established in 2012 due to the group effort and cooperation between the Teaching Workforces, the Practical

Training Department and the Professional Development Administration of the Ministry of Education in Israel (Israeli Ministry of Education, 2012). By operating professional actors, the Centre offers a unique simulation learning experience. The actors play the role of the main characters of the event which reflects the daily life experiences of teachers in order to stimulate quality teaching and education achievement based on the personal dimension of these interactions. This is expressed through the use of language and communication skills that enable teachers to use their professional knowledge in the best appropriate way (Eizenhamer, 2016).

The events used in the simulations focus on the dynamics of conflict transformation and the practice of interpersonal communication skills. Students experiencing these events can recognize their own personal automatic responses in conflict situations. Discovering these behaviors in a safe learning space, allows participants to become more conscious to their behaviours and responses in similar situations. This awareness is based both on “a clear understanding of the need for change” and exploring additional possibilities for dealing “when faced with similar situations in reality” (Eizenhamer, 2016, para 4). The simulation experience is done in a safe and protected environment. Professional actors provide a real event experience when playing the role. Replaying the recorded video of the simulation enables the students to relive the role providing a space for growth both on a professional and personal-emotional level.

Shapira-Lischinsky's research (2012) shows that the simultaneous process has many advantages: a) An investigation of ethical events without the time pressure that characterizes the work in the field; b) Active guidance leading to the commitment of the participants; c) An experiential training that leaves an impression on the learner, so that the learning content is embedded over time; d) The raising of emotional aspects that participants are sometimes not aware of, which affects the process of decision making in everyday situations and at ethical events and which raise the importance of investigating organizational ethics.

In light of the positive ramifications of the simulation on the teachers' work and in particular the new teachers, the Ministry of Education supported the establishment of simulation centres in the colleges of education in order to promote and foster effective conditions for teaching and learning by integrating relevant communication skills into the routine conduct of teachers and educators. In addition, the program aims to promote the abilities of teachers in the individual dimension of teaching through learning-based simulation experience (Israeli Ministry of Education, n.d.).

This study focusses on the impact of Learning-based Simulation on the professional development of intern teachers through examining their satisfaction with their learning-based simulation experience with an emphasis on developing communication skills, learning about a new teaching method, self-reflection and more. The aim of this study is to develop applicable knowledge in the design of simulation workshops that support the teaching goals and professional development of new teachers, as well as to develop a

theoretically informed knowledge base about the contribution of experiential simulative learning to the training of intern teachers.

Simulation workshops

The simulation workshops are held in small and intimate learning groups, in advanced technological simulation studios, enabling the visualization of video simulations. In the simulation workshops, the participants take part in a practical learning experience in a safe space, and participate in simulations of different pre-selected scenarios according to the needs of each group. According to Eizenhamer (2016), “these scenarios are written according to an ‘if-then’ model whereby the actors react dynamically according to the interpersonal interaction created by each individual volunteer in each simulation” (para. 6).

In the simulation workshop, participants take part in the simulations of conflict situations, featuring professional actors who are trained to play roles of people who work in their professional world, such as students, parents, and professional staff. The roles vary according to the conflict and the complexity of case stories and are adapted and/or developed in accordance with the needs of the participants.

According to Eizenhamer (2016, para. 7), “The simulations are recorded on video, which advances a deeper learning experience through the video-based-debriefing process that takes place after each simulation. This debriefing inquiry process allows participants to see themselves in action and to identify additional and new communication skills which can be consciously chosen for use in similar situations in the future”. This is how learning is done through the simulation.

Studies show that learning in the simulation process is done through the role play in the simulation workshops and at the debriefing stage, when participants watch and examine selected pieces taken from the role play in the Simulation (Masats & Dooly, 2011).

After experimenting with the simulation and after the debriefing process there is “a process of feedback” (Israeli Ministry of Education, n.d., para. 3) that includes self-feedback of the participant who played a role in the simulation, feedback from the group, feedback from actors about their interpersonal experiences with the participant and feedback from the group facilitator. In addition, each participant who experiences the simulation receives a copy of the video recorded simulation in which he or she participated in a portable disk for personal use, and written feedback of the workshop participants about the simulation, so that the learning process can be continued even after the workshop. The Israeli Ministry of Education notes that “following participation in a simulation workshop, participants can become better acquainted with themselves and adapt additional ways of coping, beyond the automatic patterns they are used to” (n.d., para. 4).

Study questions

- To what extent do interns perceive participation in simulation as a tool for learning?
- How does the facilitator's intervention contribute to the experience of participation in the simulation?
- To what extent did the scenarios and their analysis by the actors affect the participants' experience in the simulation?
- How do the events used in simulation contribute to participants' ability to deal with their own responses to a conflict situation?
- To what extent does participation in the simulation contribute to the acquisition of communication skills among participants?

Methodology

The present study was carried out in a mixed approach of qualitative and quantitative methodology in order to strengthen the validity of research and enrich the area which it discusses. The qualitative data include structured interviews with intern teachers and observations in the simulation workshops in an attempt to understand the processes taking place in the simulation workshop and to give explanations to the perception of the process by the participants (Sabar, 2006). The quantitative data include a survey of satisfaction from the simulation-based learning method. The quantitative data was collected via an online two-part questionnaire: 1) 18 closed questions; 2) 3 open questions. Responses were measured using a five-point Likert scale with 1= "completely disagree" and 5= "completely agree". The interns had to respond to the questionnaire after experiencing two simulation workshops.

Sample: The quantitative sample included 130 interns from all specializations: Science Teaching, Arts, Special Education and Early Childhood. The qualitative sample included 10 participants: 2 interns from Special Education; 2 interns from Early Childhood; 3 interns from Arts; and 3 interns from Science Teaching.

The sample was chosen from an Arab college for education in Israel and it is one of convenience (Zamir & Beit-Mariam, 2005). Due to logistical constraints, we chose intern teachers that were available to the researchers at the right time and right place. While this sample is not representative of the entire population, it allows us to obtain basic data and trends regarding the contribution of simulation based-learning method to the professional development of beginning teachers.

Data processing: Quantitative data were processed and analysed by quantitative research methods using descriptive statistics. The empirical material gathered from the interviews was processed into texts and each text was analysed into content units. The content units were categorized and sub-categorized and went through a quantitative process (Ryan &

Bernard, 2000). After the categorical structure was solidified, the findings were surveyed, analysed and discussed.

Findings and Discussion

Quantitative data as well as qualitative data show that all the interns perceive participating in simulations as an effective tool for learning, as shown in Table 1.

Table 1
Effectiveness of Simulation Workshop N (%)

Items scaled	Don't agree at all (1)	Don't agree (2)	Hesitant (3)	Agree (4)	Totally agree (5)
V1: the discussion in the group before the simulation revealed a new method of learning	1 (.8%)	0	15 (12.3%)	54 (44.3%)	52 (42.6%)
V2: simulation is an effective means of learning	0	0	4 (3.2%)	47 (37.9%)	73 (58.9%)
V6: the active discussion in the group after the simulation has contributed to analyzing the event	0	2 (1.6%)	8 (6.5%)	61 (49.2%)	53 (42.7%)
V11: I have learned a lot from discussing the event with colleagues in the group and the actors	0	3 (2.5%)	12 (9.8%)	56 (45.9%)	51 (41.8%)

Quantitative data show that 87% of the interns totally agree or agree that the discussion in the group before the simulation revealed a new method of learning while 13% are hesitant or do not agree. Almost all participants (97%) totally agree or agree that simulation is an effective means of learning: *“Simulation is an amazing means for learning, I have learned a lot at the first experience, it is a new way of thinking and dealing with cases in classroom, it is very useful”* (It should be noted that here and elsewhere, student testimonials have been translated from the original Arabic by the authors). Eighty-eight percent (88%) have learned a lot from discussing the event with colleagues in the group and the actors, and 92% think that the active discussion in the group after the simulation has contributed to analysing the event: *“I learned a lot from the workshop during the active discussion with actors and classmates. Everyone has a point of view and we benefit from everyone”*.

Studies have already shown that group simulations have the potential to promote learning from two aspects: (a) a better transfer of knowledge (Anderson & Lawton, 2009); and (b) strengthening knowledge retention (Clark, 2007).

The intervention of the facilitator has a significant impact on the level of satisfaction of the participants, as shown in Table 2.

Table 2
Contribution of the Facilitator to the Simulation Workshop N (%)

Items scaled	Don't agree at all (1)	Don't agree (2)	Hesitant (3)	Agree (4)	Totally agree (5)
V3: The facilitator was successful in creating a comfortable and motivating atmosphere among the participants	0	0	6 (4.9%)	49 (39.8%)	68 (55.3%)
V4: The facilitator was successful in attracting participants' attention	0	0	6 (4.8%)	52 (41.9%)	66 (53.2%)
V5: The facilitator was clear in his instructions	0	0	5 (4.0%)	52 (41.9%)	67 (54.4%)

Among the positive things that were noted by participants about the workshop was the workshop's facilitator: *“The performance of the facilitator, her organized work and her professionalism”*. This impact is reflected, as 95% of the participants totally agreed or agreed that the facilitator was successful in creating a comfortable and motivating atmosphere among the participants, in attracting participants' attention, and in her clear directives: *“This was my first experience in simulation and I was sceptical about what lies ahead. But when the facilitator opened the workshop, things looked different. Relaxed and speaking softly, she clarified the aims of the simulation and immediately created a comfortable atmosphere for experiencing and learning”*.

One of the main reasons that teachers abandon the teaching profession is poor training or lack of training in proper preparation for coping with real-time classroom scenarios, in which the beginning teacher is required to be skilled in the management of class and decision-making (Israeli Ministry of Education, n.d.). Simulation aims to help new teachers to integrate theories with actual classroom teaching practices through real-life scenarios in which they take part along with the actors. In this context, 90% of the participants totally agreed or agreed that through the actors' representations they have explored new tools and skills to resolve conflict, and 95% totally agreed or agreed that they have learned from the actors' reaction in analysing the event and that they believe that the actors were able to depict the scenario correctly and truly: *“All the events were interconnected. The way the actors presented was wonderful and encouraged us to speculate about what would happen after each and every event. Everyone was listening and interacting with the actors from beginning to the end”*.

Despite the traditional process of training of teachers, the "real"/"true" world of teaching that is revealed in front of them when they actually teach is considerably different from what is portrayed in their view as preservice teachers and they feel unprepared for actual teaching in front of a classroom. Following is the contribution of the simulation in this context, as an interviewee noted: *“Despite the training I have acquired, I do not feel self-*

confidence in managing conflicts and solving behavioural problems in class. But after I volunteered to take a role in a simulation and after analysing my performance in the scenario by the actor and group, I have been exposed to my weak points and learned how to deal with similar cases in the real classroom. This experience contributed to my self-confidence in class, no doubt”.

The simulation workshop constitutes a supportive environment and encourages learning and consideration of different perspectives, as presented in Table 3. Up to 95% of the interns totally agree or agree that through the roleplay of the actors, they have acquired new skills and tools for analysing and synthesizing events, while 92% have learned from the actors' responses how to act in similar situation.

Table 3
Actors Play a Major Effective Role in the Simulation Workshop N (%)

Items scaled	Don't agree at all (1)	Don't agree (2)	Hesitant (3)	Agree (4)	Totally agree (5)
V8: I have acquired new skills through the roleplay of the actors	1 (.8%)	2 (1.6%)	10 (8.1%)	58 (46.8%)	53 (42.7%)
V9: I have acquired new skills and tools for analyzing and synthesizing the event through the roleplay of the actors	1 (.8%)	0	5 (4.0%)	68 (54.8%)	50 (40.3%)
V10: I have learnt from the actors' responses how to act in similar situation	0	1(.8)	9(7.3)	61(49.6)	52(42.3)

Table 4 shows that around 89% of the interns totally agreed or agreed that the debriefing process that took place after the simulation helped them to review their own responses in the conflict action and to reconsider the reactions of others: *“Watching ourselves enables us to rethink our actions and reactions, returning to events and analysing them together”.*

In the same spirit, 82% of the interns totally agreed or agreed that following the simulation, they received positive reactions from the group, and 94% of them enjoyed the learning process through the simulation.

A primary goal in training teaching professionals is to impart to new teacher’s effective communication skills to work with students and staff on a daily basis. Therefore, educators may want to consider simulations and other less traditional methods to provide opportunities for their students to learn and practice appropriate communication skills for the field. A summary of intern responses to questions about communication skills is included in Table 5.

Table 4
Contribution of Simulation to Conflict Resolution N (%)

Items scaled	Don't agree at all (1)	Don't agree (2)	Hesitant (3)	Agree (4)	Totally agree (5)
V7: the group feedback was positive	0	1 (.8%)	21 (16.9%)	64 (51.6%)	38 (30.6%)
V12: the debriefing process that took place after the simulation helped me to review my own responses in the conflict action	0	0	14 (11.3%)	55 (44.4%)	55 (44.4%)
V13: I have enjoyed the scientific simulation experience	0	0	7 (5.6%)	52 (41.9%)	65 (52.4%)
V14: the debriefing process that took place after the simulation helped me reconsider the reactions of others	0	0	12 (9.7%)	57 (46%)	55 (44.4%)

Table 5
Contribution of the Simulation to the Acquisition of Communication Skills N (%)

Items scaled	Don't agree at all (1)	Don't agree (2)	Hesitant (3)	Agree (4)	Totally agree (5)
V15: the simulation experience contributed to acquisition of communication skills	0	1 (.8%)	7 (5.7%)	55 (44.7%)	60 (48.8%)
V16: the simulation experience contributed to acquisition of active listening: expressing opinions, asking questions	0	0	6 (4.8%)	58 (46.8%)	60 (48.4%)
V17: the simulation experience contributed to the acquisition of non-verbal communication skills, response and expression of empathy	2(1.6)	2 (1.6%)	14 (11.3%)	56 (45.2%)	50 (40.3%)
V18: the simulation experience contributed to the acquisition of encouragement, respect and collaboration	0	2 (1.6%)	7 (5.6%)	61 (49.2%)	54 (43.5%)

Almost all interns (94%) totally agree or agree that the simulation experience contributed to acquisition of communication skills, especially active listening: expressing opinions, asking questions (95%); encouragement, respect, cooperation and feeling involved (93%). At the same time, 86% totally agree or agree that the simulation experience

contributed to the acquisition of non-verbal communication skills, response and expression of empathy; as one of the interviewees said: *“Through my experience in the simulation I have got to know what is active listening, I was encouraged to ask questions and to express my feelings without feeling embarrassed”*. Another interviewee was satisfied to talk about the non-verbal communication skills that she was exposed to and learn: *“This is the first time someone draws my attention to facial expressions, to the tone of the voice, to hand positions and the whole body movements. Oh... yes, non-verbal feedback like a smile and empathic nod or firm face expressions, wow very interesting things happens in the simulation workshops”*.

Simulation has potential as a useful tool for teaching empathetic communication skills. Creating a simulated interview allows students to practice these skills in a realistic setting with consequences tied to their actions (Adcock, Duggan, Nelson, & Nickel, 2006).

Reviews of the effectiveness of simulations show that the majority of studies of simulation environments promote better retention, transfer and a more positive affective response from users (Randel, Morris, Wetzel & Whitehill, 1992). Some suggest these positive results are due to the active participation of users in the environment (Randel et al., 1992). Others feel the ability to create an environment that is interactive, dynamic, and provides feedback through outcomes is the reason simulations work as educational tools (Prensky, 2001). Although there are still questions as to the features that make them effective, the majority of the research shows that simulations provide an opportunity to deliver contextual instruction allowing for experiential learning and deep knowledge (Schweisfurth, 2013, cited in Bovill, 2015). This is expressed by discussing issues with the group and exposing participants to different points of view. The whole process enriches thinking and reveals different ways to analyse events.

The findings of this study are consistent with the literature that promotes simulations as an effective learner-centred training tool that emphasizes the activity of the participants in the role-play and the reflectivity of the viewers using questioning strategies, dialogue among participants, and developing critical and creative thinking skills. This is an interactive and varied learning that justifies the findings of the study by the fact that its ability to influence is sustained over time.

Summary

The present study was carried out in a mixed approach of qualitative and quantitative methodology in order to examine satisfaction of intern teachers with a simulation-based learning method. It presents and discusses participants' perceptions regarding a simulation workshop's contribution to the professional development of beginning teachers. The sample included 130 intern teachers who participated in an internship workshop in a college for education in Israel.

The findings show that participants expressed enthusiasm towards the simulation-based learning method and were very satisfied with the simulation workshops in which they participated. They perceive the simulation as an effective learning method that contributes to the acquisition of communication skills and assists in conflict resolution and analysis of classroom scenarios. It contributes to their professional development, and therefore they suggested that they participate in more simulation workshops during their internship process.

In the current era where complexity is increasing, and the educational system undergoes a lack of teachers, simulation based-learning has become a necessary means for enhancing teaching and stimulating qualified personnel to take part in educating the future generations. Such simulations in teacher training will encourage new teachers to learn how to observe, reflect, and analyse ethical events. They will also be able to develop a caring approach that reinforces sensitivity to the thoughts and actions of students, colleagues and principals, and thus be more effective at various events

References

- Adcock, A. B., Duggan, M. H., Nelson, E. & Nickel, C. (2006). Teaching effective helping skills at a distance: The development of project CATHIE. *Quarterly Review of Distance Education*, 7(4), 349-360.
- Anderson, P.H., & Lawton, L. (2009). Business simulations and cognitive learning: developments, desires and future directions. *Simulations & Gaming*, 40(2), 193-216.
- Banks, J., Carson, J. S., Nelson, B. L., & Nicol, D. (2010). *Discrete-Event System Simulation* (5th ed.). Upper Saddle River, NJ: Prentice Hall.
- Bovill, C. (2015). Review of: Schweisfurth, M. (2013) 'Learner-centred education in international perspective: Whose pedagogy for whose development?'. *International Journal for Academic Development*, 20(3), 300-302. (doi:[10.1080/1360144X.2015.1066404](https://doi.org/10.1080/1360144X.2015.1066404)) [Book Review]
- Clark, R. (2007). Micro-simulations: Bridging the theory and practice in the composition of practicum. *Simulations & Gaming*, 8(3), 352-361.
- Eizenhamer, M. (2016). HaLev, The Center for Simulation in Education. Retrieved from Bar-Ilan University: School of Education: <https://education.biu.ac.il/en/node/9822>
- Gray, J. & Rumpe, B. (2016). Models in simulation. *Software and Systems Modelling*, 15(3) 605-607. Retrieved from <https://doi.org/10.1007/s10270-016-0544-y>
- Israeli Ministry of Education. (2013). The education administration, the internship and access to teaching department. Retrieved from <http://meyda.education.gov.il/files/staj/MerkazeySimulazya.pdf>
- Israeli Ministry of Education. (n.d.). Simulation for teaching. Retrieved from <http://cms.education.gov.il/EducationCMS/Units/Staj/Mitmahim/SimulaziaLehoraa.htm>

- Masats, D., & Dooly, M. (2011). Rethinking the use of video in teacher education: A holistic approach. *Teaching and Teacher Education*, 27(7), 1151-1162.
- Prensky, M. (2001). *Digital Game Based Learning*. New York: McGraw Hill.
- Randel, J. M., Morris, B.A., Wetzel, C. D. & Whitehill, B. V. (1992). The effectiveness of games for educational purposes: A review of recent research. *Simulation & Gaming*, 23(3), 261- 276.
- Ryan, G. W., & Bernard, H. R. (2000). Data management and analysis methods. In N. K. Denzin & Yvonnas S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.) (pp.769–793). Thousand Oaks, CA: Sage.
- Sabar, N. (2006). *Genres and traditions in qualitative research*. Or-Yehuda, Israel: Dvir.
- Shapira-Lishchinsky, O. (2014), Simulations in nursing practice: toward authentic leadership. *Journal of Nursing Management*, 22: 60-69. doi:10.1111/j.1365-2834.2012.01426.x
- Zamir, S., & Beit-Mariam, R. (2005). *Introduction to statistics for students of Social Sciences* (Unit A). Ra'nana: The Open University.

Author Details

Zuhaira Najjar
zuhaira@bezeqint.net

Wafa Zidan
wafazidan@arabcol.ac.il

Roseland Da'eem
roselandda@gmail.com