

Three Levels of Learning in Simulations: Participating, Debriefing, and Journal Writing

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Simulations and games provide three levels of learning: through participating, debriefing, and writing. While taking part in the simulation, the participant experiences different types of facts, emotions, relationships, strategies, and feelings. The participant learns to handle various social situations and experience the excitement of discovery. During the debriefing discussions, the student harnesses the vast information and makes sense out of these experiences by sharing his ideas and listening to other's impressions. The debriefer facilitates the discussion by using the four Es of debriefing: events, emotions, empathy, and explanations. The assumption of oral debriefing is that all participants learn the same things at the same time and in the same manner. Journal writing significantly extends the analytical learning process by requiring each participant to organize the material and debrief on an individual basis. The richness of the journal develops from the writer weaving his own personal thread through his experiences, through other's encounters, and through theoretical concepts. The writing provides a record of each student's learning experience.

KEYWORDS: *debriefing; emotions; empathy; events; experiential learning; explanations; four Es of debriefing; gaming; journal writing; learning; participating; simulation.*

Although simulations and games are fun, they are more importantly educational. The problem for the professor is that students and colleagues

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assume games only mean fun with questionable learning. To stress the educational aspects of simulations and games, we propose that learning happens on three levels: through participating in the simulation, through orally debriefing about one's experience and through writing in a journal.

Some early studies (e.g., Cherryholmes, 1966) find no evidence that simulations are better methods than other forms of learning, but that students show more interest in simulations than in traditional methods. Later Pierfy (1977) reviews 22 studies on the effectiveness of simulations and games and concludes two things: that simulation games are not better (but neither were they worse) than conventional teaching methods and that these simulation games have a significant advantage over traditional instruction when it comes to changing attitudes and student interest. Foster, Lachman, and Mason (1980) declare simulations as effective teaching tools, especially in subjective understanding of social events. Bredemeier and Greenblat (1981) review several studies that support higher affective and behavioral learning from simulations than from traditional modes of learning. They also find some studies that demonstrate no difference in learning and argue that a better taxonomy of games would clarify the findings. Hankinson's recent dissertation (1987) substantiates that cognitive and affective learning are higher for structured debriefing of students than for students who experience unstructured debriefing or for students just watching a film.

As researchers refine their measures and add more structure to debriefing, they are able to support their gut feelings that learning is occurring in an enjoyable atmosphere. Learning occurs at three levels by playing the simulation, by debriefing in discussion, and by writing in a journal.

Playing the Simulation

One of the ways in which students learn is on the level of participating in the experiential activity. Coleman (1980) argues that the very use of games is a fundamental change in the learning process. With games he reasons there is an embedding into a person's experience and cognition of the structure of social action. During a game a student has not merely to "learn" some information, but has to fit it into a social structure in order to achieve a particular goal. Corbeil, Laveault, and Saint-Germain (1989) stress the importance of group dynamics in the learning process. The game supplies the structure for retention and usable information. As Hsu (1989) states in his general model of the learning process, experiential learning should not just be thought of as things happening to us but rather as what we do with those things.

During a simulation participants unconsciously process all types of information: facts, emotions, strategies, outcomes, relationships, feelings, and much more. As any gamer knows, the excitement and electricity in the air is all consuming. Learning happens because the students are active and not passive in the process. They are able to experiment with various options and interact with fellow students. Questions are raised in their minds as to why they acted the way they did and why others treated them in a certain fashion. They are excited about figuring out what is happening and about making new friends. Some discover the big picture that the simulation is trying to convey. On the negative side students can feel self-conscious about their actions and the numerous rules can be frustrating. Some might feel they want a greater leadership role. However, as play continues, there is a general excitement about the simulation.

Students look to each other as resources. They relish the chance to create their own rules for a situation rather than being told what they must do. Students find it enlightening to apply ideas and concepts from their many courses to the simulation at hand. According to Coleman (1980) and others (Center for Social Organization of Schools, 1980), this excitement provides intrinsic motivation, which is very helpful for learning. However, this emotional high in a simulation creates a flood of energy that has to be harnessed. This bridling process, like controlling water through a dynamo, takes place in oral debriefing and journal writing.

Debriefing Through Discussion

Most instructors who use simulations and games move to the second level of learning by following the simulation with a session designed to help students reflect on their learning (Thatcher, 1990). This process, referred to as debriefing (Lederman, 1984), consists of an oral discussion session in which students and teachers engage in a question and answer session designed to guide students through a reflective process about their learning. This practice is stressed in most instructions and as Harry (1971, p. 130) states, "A post-game discussion is necessary for maximum effectiveness of any simulation game." Gillespie (1973) observes that games are not self-teaching and need a good debriefing session to assist students in reflecting on their behavior and the purpose of the simulation. She argues that games should not be treated as breaks from the classroom routine but rather as an integral part with specific debriefing objectives. Coppard and Goodman (1979, p. 41) write, "According to many designers and facilitators, such

discussion (debriefing) and analysis are the most important elements in gaming/simulation in terms of the learning process involved." Thatcher (1990) argues convincingly that participants who can reflect on the game are in a better position to recognize what they learned in the game.

Although oral debriefing is important for learning, many simulations provide only vague instructions and questions for the debriefing process. As Harry (1971, p. 131) notes, "The class can easily degenerate into a 'free-for-all' exchange of personal prejudices." Care has to be taken to explore the lessons to be learned. Stadskev (1980) provides detailed questions for debriefing in his EIAG model (Experience, Identify, Analyze, Generalize). He proposes (1980, p. 52) this model because "it is often difficult for the teacher and the learner to be sure of what actually is learned from the game experience because they lack a structured way to find out." Hankinson (1987) substantiates this structured approach to debriefing for better learning by stating specific questions focusing on present behavior and generalizing to the real world.

The professor's role during the debriefing is very different from the role of lecturer. The debriefer sets the tone by being open and accepting new ideas. In debriefing, the professor is a facilitator and encourages all to offer opinions. This might be difficult to offer if a professor's lecturing style dominates passive students. In debriefing, the instructor leads without being overbearing and has a sense of timing and asks probing questions. He encourages students to see patterns of behavior and proposes associations from the simulations to the real world. The debriefer's role is a two-way street instead of the one-way street of lecturing. The debriefer is only one resource and sets the tone for others to speak and offer opinions. As Corbeil et al. (1989, p. 56) assert: "Education is less the art of organizing the student's personality than that of ensuring that the personality has the means to organize itself."

To assist in the analytical learning we propose that the oral debriefing revolves around the four Es: events, emotions, empathy, and explanations. A good way to initiate the conversation about the simulation is to ask the participants to describe the *events* that happened to them. The debriefer allows as many people to speak as want to speak. If the debriefer is aware of a particular interaction that was meaningful, he or she calls on these people to elaborate. The problem is to move the conversation in analytical directions without being domineering.

After the events are examined, the debriefer moves the conversation to the second E, the *emotions* around these events. He or she is gentle in drawing out feelings. If students find it difficult to verbalize their feelings, the debriefer offers many possible emotions as a starting point. The role of the

debriefing is as a facilitator who creates a social atmosphere where all emotions and ideas are respected. Even when some harsh emotions are discussed, the debriefer acknowledges them and thanks the person for his or her honesty.

With the events and emotions from many different people there is an abundance of information in the air. To help students learn from this situation, the debriefer stresses the third E, which is to *empathize* and see the simulation from other's viewpoints. He or she encourages participants to "stand in another's shoes" and see the world as they see it. The debriefer demonstrates that two contrasting perspectives to the same situation are both valid. Gaining insights into different viewpoints is crucial in simulation learning.

The final E of debriefing is *explanation* or analysis of simulation. These explanations happen in several different ways. The debriefer encourages participants to explain their motives behind some action or to explain the reasons for certain emotions. From the immediate situation the conversation is advanced to the main purpose of the simulation. Students discuss their interpretation of the simulation's purpose. Connections are made from the simulation to the real world, and the similarities and dissimilarities are discussed. Participants speculate if people in real life situations make these same decisions. Finally, academic theories are applied to the actions and emotions. Students explain the theories and then logically connect them to the simulation. This type of structured debriefing is recommended by Hankinson (1987) and Hsu (1989).

Although this oral debriefing is vital to the learning process, several assumptions are made about the extent of learning. First, it is assumed that, because an idea or explanation is discussed, all students understand it and make the same interpretation. Second, it is assumed that all students offer all their ideas concerning the topic. The third assumption is expressed by Lederman (1984, p. 420): "Thus, particularly in terms of evaluation and measurement of effectiveness of learning, the postexperience analytic process is critical to learning. It is in the postexperience analytic discussion that learning is explored and measured." A fourth assumption is also pointed out by Lederman (1984, p. 429): "The objective of the postexperience discussion is to provide the learners with mechanisms that encourage self-reflection and that assist them in making connections between experience and cognition."

Although these analytical learning processes of understanding activities, interpreting events, discussing ideas, offering feelings, evaluating experiences, measuring insights, and encouraging self-reflection can occur, the assumption is that these happen for all students at the same rate and in the

same fashion. In reality, the professor has very limited knowledge of these learning processes on an individual basis.

Writing in a Journal

Journal writing, the third level of learning, significantly extends the learning process in the simulation experience and is seldom used. Assumptions made during the oral debriefing are verified in each student's journal, which is a reality check of the learning process in the simulation. Journals supplement the oral debriefing and offer insights into individual perceptions of the entire experience (Petranek, 1989, pp. 115-116). The writing not only substantiates learning, but it enhances analytical learning.

Abt (1972, p. 38) writes that learning happens as people invent and reinvent situations, and serious games offer us the perfect opportunity to risk new behaviors and explore various choices. Knowledge evolves from action. Piaget says that to know something is not to copy it, but to work with it and transform it (Abt, 1972, pp. 40-41). Francis Bacon (1883, p. 14) says, "Reading maketh a full man, conference a ready, and writing an exact man; therefore, if a man write little, he had need of a great memory." Bacon declares that people who actively work with material, especially through writing, understand things better.

Wollman-Bonilla (1989, p. 113) best summarizes research on journal writing in several fields, "In short, researchers have shown that journals validate self-expression and personal response, encourage understanding, imaging, speculation questioning, and the shaping of ideas, and provide students with information relevant to their concerns and problems in the content of their own entries and teacher's response." She goes on to say, "Moreover, unlike speech, writing remains for us to rescan and reconsider; by putting our thoughts on paper we are often better able to recognize and understand them." Emig (1977, p. 122) believes that writing is a unique learning opportunity because it embodies hand, eye, and brain. Writing offers long- and short-term feedback, makes associations with ideas, and makes us more aware of ourself. Imscher (1979, p. 244) stresses the higher level of learning with writing, "If we think of education as concerned with learning to know, organizing knowledge, and finally, developing our capacity to use knowledge in new situations, then certainly writing serves us all as a way of learning and developing." Business faculty use journals to help their students learn and discuss more (Hilton, 1989). Engineering faculty find that their

students' motivation and inquisitive skills are developed through journals (Rumpf, Melachrinoudis, & Sanjay, 1988). Kaiser (1961) recommends Ira Progoff's journal writing technique to become aware of one's inner self. Minot (1989) and Lederman (1973) advocate writing specific journal entries to improve one's personality. All of these valuable reasons from other disciplines to use journals seem like natural arguments to apply the process to simulations.

Raser (1969, p. 115) notes, "For gaming is, in essence, a process of learning to learn, of developing skills that increase one's ability to learn new facts and skills." Rath (1987, p. 27) is one of the few professors to recommend journal writing in simulation experiences. He urges debriefing through discussion and writing because it gives "students relatively free rein to organize, compare, classify, evaluate, summarize or analyze experience. The product of the debriefing process is an articulated sense of 'meaning.'"

Journal writing is seldom recommended in the instructions of a simulation. One of the few is Gamson (1978, p. 66) who refers to it in passing as a guide for coordinators in SIMSOC. From our experience there are many reasons for recommending journal writing as a serious learning technique.

One advantage is that journal writing forces the student to organize the material on a personal basis. It harnesses the raw energy of the simulation and the frenzy of ideas during the oral debriefing into a concrete, coherent essay. This writing activity broadens the basic principle of gaming—learn by doing. People learn by reinventing and reapplying ideas actively. Students often comment in their journals that they learn more about the simulation because they have to organize their thoughts.

Another advantage is that it allows a very personal and private communication with the professor. As one student said in her journal, "I like the requirement of the journals because we get a chance to tell what we've learned from the simulation and get to express *our own* experience." This personal dimension gives students a better opportunity to share feelings that might be negative. As the professor comments on the student's honesty, a closer relationship develops between the professor and student (Wollman-Bonilla, 1989).

Journal writing provides a quiet student with a mode of communication. They are able to share their thoughts and ideas that they feel are private. These shy students find that writing is a better means of communication.

Through journal writing each student relates many more personal experiences from the simulations than are shared in the oral discussion. Students bring their own backgrounds and cultures in their perceptions of

the simulation: The journal allows for an in-depth analysis from each student's perspective.

Over a semester students experiment with certain behaviors and discover the effects of learning on their personalities. When students reread their journal entries for the semester, they see the documentation of their personal choices and personal growth. They have the opportunity to learn about themselves in different social situations.

Journal writing addresses the issue raised by Greenblat and Duke (1975, p. 191) concerning differential learning due to the three simultaneous roles of playing a simulated role, playing a game, and being a student in class. These roles produce various viewpoints and participants write about each. By providing instructions early about writing from each of these perspectives, differential learning is recorded.

Another major advantage to journal writing is that it is a good vehicle for private communication and evaluation of the student's learning. The learning is measured for each student. It is analogous to grading long essay questions. Grades depend on analysis and interpretation of events rather than just description. This type of grading focuses on the learning process rather than the ability to play the game.

The written journals provide a concrete method of gathering information for research. Often people feel that they have learned something in a simulation, but it is hard to measure. Content analysis of the journals is a good research method to validate the learning process. If research is being conducted on the practical aspects of running a simulation, written feedback is most valuable.

A final advantage of journals is that participants integrate theories into their experiences. By using theories that summarize, explain, and predict human behavior, participants move to a high level of analytical learning. Allowing participants to think about things and write about them helps them interpret events. Getting a player to see the larger picture is one of the thrills of teaching and gaming. Corbeil et al. (1989, p. 60) state that, in the final stage of learning, players invent their own rules and circumstances.

On the negative side of journal writing, there is a great deal of work involved. For the student it takes a long time to organize and write. For the professor it takes a long time to read, evaluate, and comment. To maximize the learning, both of these processes should be done in a timely fashion. As Wollman-Bonilla (1989) says, students look forward to the professor's comments right away, and this feedback takes time. Some students believe that journals are just busy work or only descriptions of events rather than analyses of events.

Guidelines for Journal Writing in Simulations

These guidelines are applied to one simulation but work best when several simulations are used over the semester as an integral part of the course. A student needs to know expectations and is to be given specific guidelines. The students follow the four Es of debriefing: events, emotions, empathy, and explanations. First they write about the important events that happened and the emotions attached to those events. They empathize and relate to others' viewpoints and emotions. They explain these actions by interpreting them. They examine all the events, apply them to the larger world and implement theories to explain things. The best grades are given for the most insightful analysis.

Because this is a new method of learning, a student has to be shown how the organization and analysis is to be completed. The tone is set in the oral debriefing by allowing many people to speak and relate their ideas and feelings. Similarities and dissimilarities are drawn between various events. Theories and real-life examples are discussed and students are encouraged to elaborate on these ideas in their journals. Readings about theories and real-life situations are available. To assist the students, examples of past journals are handy to consult. Specific examples during the oral debriefing are mentioned and the students are urged to elaborate on these ideas.

On the practical side, criteria are defined in advance. The grading is completed as soon as possible to reward the student's efforts. If many simulations are being played in one semester, the journals are evaluated three or four times in the semester. Written comments are made to guide the student in this new learning process. All the participants and the debriefer realize that the journal entry leads to a heightened learning experience.

Summary and Conclusion

Learning happens in many different ways. In simulations and games learning is a fun and enjoyable experience. The earliest research studies demonstrate that students' interest in simulations is high, but that additional learning is hard to support. Later studies point out that simulations are no worse than conventional methods, and simulations are better at changing attitudes. More recent studies bolster the contention that higher affective and behavioral learning takes place in simulations as compared to ordinary techniques; and if the debriefing is structured, the learning is even more

substantial. We contend that learning occurs on three levels: participating in the simulation, debriefing in discussions, and writing in a journal.

This experiential learning in a simulation is different from the traditional classroom. Students have to learn many different things to be participants. They have to learn their roles, the rules, strategies, relationships, outcomes, and the interrelationships among the components.

Oral debriefing is the second level of learning. Debriefing attempts to order the many diverse happenings. The debriefer is the facilitator and creates an atmosphere of acceptance and respect. To establish order we propose following the four Es of debriefing: events, emotions, empathy, and explanations.

The assumptions during the debriefing are that all students learn the same lessons at the same time and in the same manner. The professor has limited knowledge of learning on an individual basis. The third level of learning provides a record of the learning process for each and every participant. Journal writing is used in many other fields as a means to validate knowledge, to organize material, to understand ideas, and to substantiate the experience. Simulation and gaming practitioners barely recognize journal writing as an important technique in learning, yet it has numerous advantages. Journal writing forces personal organization of the material, allows for private communication with the professor, and provides a quiet student with an avenue of communication. With journals, a student writes about personal experiences, problems, and growth. For the professor the journal is a good vehicle for grading student analysis, for investigating problems with running the simulation, and for doing research. Finally, journals encourage each student to integrate their experiences with real life and with academic theories. Journal writing increases the analytical learning process and provides a document of individual learning from the other two levels of participation and debriefing.

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