Practice Makes Person:
From Avatar to Moral Self through Simulated Leadership Experiences

Amy Moore, Capella University

Abstract

Based on an expertise model of moral character, this paper examines how simulated scenario-based experiences can build implicit attitudes upon which moral action is based. Supported by theories of situated learning and social intuitionism, this conceptual framework proposes an extension of the Proteus Effect, the influence of avatar identity on behavior and subsequent carryover from virtual experiences to the real world. Implicit moral schema is discussed as the basis for selecting avatar-based virtual learning experiences to accelerate the development of moral identity in future leaders.

Can we teach ethical leadership? The abundance of leadership development programs offered through higher education, corporate and military training, and independent consulting services suggests so. Certainly a demand for ethical leadership is evidenced by corporate scandals, controversial military actions, and questionable political policy-making. However, awareness of ethical issues and courage to take action upon them are not synonymous (Templin & Christensen, 2009). In fact, there is a delineated gap between decision and action (USAFA, 2011) in ethical dilemmas—between knowing and doing. Bridging this gap requires more than instruction in moral reasoning or ethical leadership, however. Moral action results from motivation to act (Rest et al., 1999), and motivation results from internal cognitive and affective processes that cannot be taught. Arguably, they are central to self. Action taken on an ethical dilemma is best predicted by moral identity, a construct that must be nurtured through development of expertise in the moral domain (Narvaez & Lapsley, 2009), and development of implicit moral thoughts and attitudes (Haidt, 2002). Moral thoughts and attitudes are the foundation for ethical leadership, influencing the leader as a moral person as well as a moral manager (Trevino, Hartman, & Brown, 2000). The question, then, is not whether we can teach ethical leadership. The question is how can we, as adult educators, facilitate the development of moral identity as a prerequisite for ethical leadership? More specifically, can the development of moral identity be accelerated through avatar-based simulation experiences with ethical dilemmas?

Based on an expertise model of moral character (Narvaez & Lapsley, 2009), this paper will examine

how simulated scenario-based experiences can build implicit attitudes upon which moral action is based. Supported by theories of situated learning (Brown, Collins, & Duguid, 1989) and social intuitionism (Haidt, 2001), this conceptual framework relies on evidence from simulation training literature to propose an extension of the Proteus Effect (Yee & Bailenson, 2007)—a carryover of avatar identity and behavior from virtual experiences to the real world. Research from an implicit moral schema perspective is discussed as the basis for selecting avatar-based virtual learning experiences to accelerate the development of moral identity in future leaders.

Prior research related to this topic, developmental considerations of young adults, sociocultural influences on moral identity development, and instructional and assessment methodologies will be examined. The concepts presented are applicable to the development of future leaders in any industry, but this paper will focus primarily on military service academy cadets. Assumptions include acknowledgement of the ongoing necessity for leadership training among military service academy cadets, and the current use of multimedia instructional platforms as a viable training method. The scope of this discussion is limited to moral identity as a prerequisite for ethical leadership, the use of multimedia avatar-based instruction for acceleration of expertise in the moral domain, and the transfer of both learning and identity from virtual world to real world.

Theoretical Framework and Prior Research

The Social Construction of Identity

"Through others we become ourselves" (Vygotsky, 1931/1997, p. 105). A social constructivist view of learning supports the idea that knowledge and meaning result from experience—or practice—that is situated within the social context (Merriam, Caffarella, & Baumgartner, 2007). Identity theory has a long evolution in social psychology with a recent focus on both the influence of social structures on identities as well as the influence of self-verification on social structures (Stryker, 2000). Mead (1934/1962) espoused a similar theory, that self is defined not through introspection, but through social relationships. Self-awareness is a product of evaluating the compatibility of thoughts and actions with social and contextual variables. This notion of a situated identity defines Mead's popular tenet that self is a reflection of society. As such, Stryker (2000) suggests that members of social groups rely on their collective resources to fill gaps in individual schema, thus creating a "cultural memory" of identities more likely to be activated again (p. 292). This provides a strong illustration of the shared construction of identity.

Moral Identity

Moral identity has been characterized as one identity construct in a multifaceted self (Aquino & Reed, 2002) that regulates moral action based on the strength of moral parameters the individual sets for himself (Reynolds & Ceranic, 2006). From this perspective, the influence of moral identity on moral behavior depends upon the level of consistency

between the two in which the individual wants to act (p. 1611). For example, a person who places moral identity as central to his character will be more motivated to act morally.

However, motivation to act morally is limited by the ability to act morally (Hardy & Carlo, 2005). Further, moral action can be negatively mediated by cultural and situational influences, as seen in instances of moral disengagement (Bandura, 2004). Therefore, moral identity can be conceived of as a fluid construct when defined by explicit situational influences and individual abilities.

Alternatively, a view of moral identity as a product of intuition and implicit thought defines it with more stability. Moreover, constructs of moral functioning may be more highly influenced by implicit thought processes than deliberative ones (Narvaez, in press). Haidt (2001) proposes a social intuitionist model, contending that moral intuition—rather than reasoning or rationalism—produces moral judgment. Building on Lakoff's concept of embodied cognition—that thought is an extension of physical and emotional experience—and Bandura's concepts of modeling and imitation—that knowledge comes from watching and imitating the behavior of others—Haidt defines moral intuition as a set of unconscious and interlinked moral concepts that emerge from innate tendencies and enculturation (p. 826; Lakoff, 1987; Bandura, 2001). A point of salience with Haidt is that intuition is a form of cognition, but not a form of reasoning (p. 814). Although in agreement that people engage in moral reasoning, Haidt argues that reasoning is frequently a post hoc result of moral judgment and not the cause. Moral intuition, alternatively, appears suddenly and with emotional valence of instant approval or disapproval (p. 818). From this social intuitionist view, the implicit thoughts and feelings that form moral intuition are the source of default judgment. Even when explicit reasoning takes place, it is to seek confirmation of intuition (p. 822).

The strength of intuition has been empirically examined. Four recent studies support the view that implicit attitudes are highly resistant to modification (Gregg, Seibt, & Banaji, 2006). This is encouraging for maintaining established moral beliefs, but it bodes challenging for training interventions designed to reverse attitudes with less prosocial value. Research also shows that some implicit attitudes are inaccessible while simultaneously affecting behavior (Wilson & Bar-Anan, 2008). In one study on political attitudes, automatic responses tracked by computer did not correlate with verbal self-reports (p. 1046). The researchers clarify that what seems like deception may actually be evidence of confabulation, or the unconscious fabrication of facts in the absence of an explicit explanation (VandenBos , 2007). While confabulation suggests lack of access to implicit thought, perhaps it also illustrates an attempt at moral reasoning when intuition conflicts with social norms.

The Expertise Model of Moral Character

If implicit, or tacit, knowledge is the key contributor—or even a primary contributor—to moral identity and moral functioning, then training programs must consider the cognitive process involved in the development of a tacit knowledge base. The schema theory of cognitive development

describes this process as a novice to expert trajectory—through experience, individuals acquire larger and more connected units of knowledge (or schema) that creates a larger procedural and declarative knowledge base from which to make decisions (Schunk, 2008). As such, experts make decisions in their domains more rapidly and accurately, explained partly by research suggesting that experts can look at a scene and perceive all the aspects simultaneously, but novices perceive each aspect one at a time (Andre & Fernand, 2008). Moral schemas are general structures of knowledge created through experiences in social interaction, and through observation of social cause–effect actions (Narvaez & Bock, 2002). Experts have chronic access to their moral schemas, enabling them to rapidly and implicitly process social information, identify moral dilemmas, and act with goal-dependent automaticity (Lapsley & Hill, 2008). According to this expert model of moral character, expert moral schemas result from repeated experience, socialization, and deliberate coaching or instruction.

Lapsley and Hill (2008) contrast the expertise model of moral character with the social intuitionist model by the focus of intuition on the backend of moral development rather than the frontend, respectively. However, intuition is the driving factor in moral judgment nonetheless. Whether through progressive enculturation or intentional instruction, developing expert moral intuition is the ultimate goal. Interestingly, expertise in the moral domain can be accelerated through compressed exposure to experience (Narvaez & Bock, 2002), such as in computer simulations or immersive virtual learning environments.

Situated Cognition and Simulations

Brown, Collins, and Duguid (1989) propose a theory of situated cognition, with emphasis on authentic learning experiences. More specifically, culturally relevant and contextually bound problem solving is essential for the development of tacit knowledge during learning. The theory proposes that situated activity produces conceptual representations of the world that "can't be replaced by descriptions" (p. 36). Further, knowledge is imbedded in the context and culture in which it is created and used; therefore, knowledge learned in authentic situations translates to additional authentic situations. This view of learning as situated in context supports immersive virtual training and simulations of real-world experiences.

The gap between novice and expert has been narrowed by advances in training technologies—most notably, the virtual simulator. The simulator is a computer-based training system designed to replicate real-world scenarios without the associated dangers or costs. As neuroscientific luck may have it, the brain fails to notice the difference (Blascovich & Bailenson, 2011). Prolific use of simulated training in virtual learning environments (VLE) to accelerate experience can be found in the fields of aviation, medicine, engineering, and the military (Hahn, n.d.). Fox and Bailenson (2009) conducted a content analysis of the research on virtual reality, finding that medicine, social sciences, and engineering research composed 95% of the published articles. Specifically, they identified applications of virtual reality for medical personnel communication and decision-making, physical rehabilitation, pain management, cognitive behavioral therapy, flight

simulation, military-conflict scenarios, and cross-cultural communication.

Recently, applications of VLE have expanded to higher education, particularly in management and information technology. In one study, two hours of simulated training in marketing management skills exposed participants to the equivalent of five years of diverse business experiences (Gary & Wood, 2009). Avionics technicians can gain 4 years of experience in just 20 hours of simulation-based instruction (Lajoie, 2003), while 25 hours of scenario-based simulation accelerated experience in resolving electrical equipment failures by 8 years (Gott & Lesgold, 2000). Regardless of training content, virtual learning environments allow participants to practice new roles in new environments, frequently with intense and extended experiences that reflect authentic problem-solving in a risk-free setting (Oblinger, 2006).

Virtual Identity and the Proteus Effect

In virtual learning environments, such as simulators or virtual worlds, humans are typically represented by animated models called avatars. Inside the virtual environment, these digital self-representations are designed to mimic the actions of the humans they represent (Fox, Arena, & Bailenson, 2009). A growing body of research has focused on the psychological connection between humans and their avatars, revealing a significant overlap in identity.

Yee and Bailenson (2007) describe the Proteus Effect, or the phenomenon that occurs when humans adapt the behaviors of their avatars to what they believe others expect. More specifically, they behave according to the characteristics of their avatars (p. 274). In a study with 14 undergraduate students, Yee and Bailenson randomly assigned each of them to either an attractive or an unattractive avatar. Participants in attractive avatars moved closer to opposite gender avatars and disclosed more information about themselves. In a second study, the results were replicated with 50 participants assigned to short or tall avatars. Participants with taller avatars were more confident negotiators than shorter ones. Both studies confirmed the Proteus Effect. The authors suggest the effect carries over into the real world as well. Yee, Bailenson, and Ducheneaut (2009) explain that the Proteus Effect contributes to the development of a unique self-model, one that continues to influence behavior beyond the virtual environment. In this sense, the Proteus Effect permeates participants' initial behaviors based on outward characteristics of their avatars to behaviors based on previous experience and observation of their avatars from a third-person perspective (p. 306).

Three studies confirmed the Proteus Effect when participants acquired new exercise habits after seeing their avatars lose or gain weight during a virtual reality exercise experience (Fox & Bailenson, 2009). In addition, a study on avatars in the virtual world Second Life revealed that participants do not consider their avatars as separate from themselves; instead, they view avatars as a virtual "me" and learn through their avatar experiences (Schultze & Leahy, 2009). In a 3-year longitudinal survey of over 30,000 virtual world users, 40% of participants reported learning leadership skills during embodiment of their avatar (Yee, 2006).

While research continues to support the Proteus Effect, not all of the lasting effects are positive. Racial attitudes and social stereotypes developed in virtual environments can persist in real-world attitudes (Harris, Bailenson, Nielsen, & Yee, 2009). For example, Blascovich and Bailenson (2011) cite a landmark study testing the Raiders Syndrome myth that football players who wear black uniforms are more aggressive. Study participants wearing black uniforms selected more aggressive games than participants wearing white uniforms—effectively converting the myth to reality (p.101). Extended immersion in virtual reality experiences also caused one woman to later shake a tree, thinking it would rain prizes; and another woman erroneously thought she could "pick up" a mailbox with her car like she had done as her avatar (Sheridan & Parasuraman, 2006). While the last two examples were merely anecdotal, they offer illustrations of behaviors that persisted following immersive virtual experiences.

Segovia, Bailenson, and Monin (2009) describe the affective salience of immersive virtual experiences on perception of moral and immoral behavior. In their study, 63 university students were immersed in a head-mounted virtual reality scenario where they watched an avatar perform either moral, helping acts or immoral, violent acts. Participants who watched immoral acts used more hand sanitizer following the simulation than those who watched the moral acts—a phenomenon referred to as the Macbeth Effect. Although participants were spectators rather than avatars in this study, the results lend support for the realism experienced through virtual reality.

In classic role theory, people organize their experience through narratives and link selfhood to role enactment, role taking, role expectations, and role skills (Steenbarger, 1991). Common in the counseling field, a dramaturgical model of development explains the success of role-playing in learning new behaviors: As counselors provide feedback on performance, clients internalize the enacted behaviors, making them a part of their identity (p. 290). In simulated training, participants receive feedback from peers and instructors about the roles they play—suggestive of a high-tech version of the dramaturgical model and theoretical support for the Proteus Effect.

Sociocultural Influences on Moral Identity Development

Global Leadership Challenges

Military leadership is situated in both national and global contexts. Military officers are stationed globally, and frequently share overseas bases with the host country. They must have an understanding of worldwide laws, customs, and beliefs. From an internal perspective, leaders in the military require sensitivity to families of military members such as the impact of deployments on spouses and children; safety and security of homes; the need for clear communication of responsibilities; and empathetic delivery of bad news.

A risk factor in military leadership is the potential for moral disengagement (Bandura, 2004), as seen in incidents of well-publicized detainee abuse and civilian-killing in combat. Training in moral leadership should aim to reduce the risks associated with immersion in these situations. A less well-

publicized phenomenon is the struggle for military leaders to balance their personal values with military mission requirements. In an autobiographical account of one such conflict, an F16 fighter pilot recounts his experience of killing hundreds of people with cluster bombs during combat over Southeast Asia while simultaneously opposing the sports of hunting and fishing (Sonnenberg, 1985). Reconciling the military act as his duty to preserve freedom, his struggle represents a real dilemma for which future military leaders must prepare. A strong moral identity is essential for managing these dilemmas.

Intercultural Development and Moral Reasoning

Endicott, Bock, and Narvaez (2003) studied the relationship between moral judgment and intercultural development. Based on schema theory, the authors predicted that experiences with contrasting beliefs and values coupled with intentional study of multicultural experience would correlate with more advanced moral development. In the study, 70 undergraduates took the Multicultural Experiences Questionnaire, the Defining Issues Test-2, and the Intercultural Development Inventory. The results showed significant correlations between moral development and intercultural development; between intercultural development and multicultural experiences; and between the depths of the experiences. The findings related to depth of experience led the authors to emphasize quality instead of quantity in multicultural experiences, as well as the importance of intense, immersive learning experiences. These experiences give students time to more deeply understand diverse values, as well as time to reevaluate their own (p. 416).

Yee and Bailenson (2006) tested perspective-taking using avatar-based interactions to reduce negative stereotyping. Based on the concept of Transformed Social Interaction, the study assigned 48 undergraduate students to avatars resembling an elderly person and immersed them in social interactions. Results indicate that even a brief virtual experience as an elderly avatar affected attitudes about the elderly. This use of perspective-taking methods in immersive virtual training may contribute to intercultural sensitivity and awareness. Further, immersion as members of different ethnic groups may heighten intercultural maturity.

Developmental Considerations in Moral Identity Development

The Track to Expertise

In military service academies, cadets follow a unique career trajectory from college graduate to active duty officer without the benefit of the gradual leadership expertise development typically experienced by traditional college graduates. Rapid training in leadership skills is a key component to service academy curricula, but training in moral reasoning continues to be an area for growth (Jackson, Lindsay, & Coyne, 2010). Indeed, this persistent challenge may be more related to the developmental capacity of college students than a gap in the training design, both in schema complexity and in reasoning skill (Perry, 1970). Inexperience combined with an inability to see multiple perspectives creates a learning barrier that must also be overcome.

It is worth noting that college students may not have

the cognitive capacity to view multiple perspectives. Instead, many are dualistic thinkers and perceive problems as black or white, right or wrong (Perry, 1970). This developmental egocentrism espoused by Perry has been empirically tested (Olson & Finson, 2009), but might also be explained by schema theory. For example, the inability to view a concept from multiple perspectives may result from a novice conceptual schema. Ideally, exposure to alternatives may be the catalyst needed for a transition towards multiple perspective-taking.

King and Baxter-Magolda (2005) synthesize approaches to cognitive, intrapersonal, and interpersonal development and propose an integrated model for facilitating intercultural maturity. The authors based the premise on the idea that learning about cultural differences is not synonymous with the ability to use the knowledge in intercultural interactions. King and Baxter-Magolda suggest a staged approach to diversity education through exposure, discourse, and experiences. The ultimate goals are to develop expertise in understanding cultural differences, interacting with diverse people, and acceptance of cultural dissimilarities (p. 574).

Moral experts can discern moral situations, see solutions from multiple perspectives, have deep commitments to ethical outcomes, and have highly automatic responses (Narvaez, in press, p. 2). Expert schemas develop with experience. Flexibility in expert schemas allows people to access a large knowledge base for a variety of applications (Wood, Beckmann, & Birney, 2009). As discussed in an earlier section, experts have automated inferences and the ability to mobilize prior knowledge (Andre & Fernand, 2008); demonstrate more rapid and accurate decision-making (Narvaez & Bock, 2002); show pattern-matching ability and conceptual problem-solving (Narvaez, 2002); and possess moral intuition (Haidt, 2001). Indeed, experts think differently than novices.

Knowing "That" Versus Knowing "With"

Broudy suggested that people do not just know about something or know how to do something, but also know "with" every learned experience and idea ever conceived (as cited in Bransford & Schwartz, 1999). Bransford and Schwartz (1999) build on Broudy's theory by proposing an active view of transfer. Simply, people do not arbitrarily use old knowledge in new situations; instead, they actively shape the situation, revise it, seek other perspectives, and ask for feedback in search of conceptual change (p. 93). Bransford and Schwartz argue for this explanation of transfer as dynamic and refute the idea of transfer as a direct application of prior knowledge. This cumulative and comprehensive way of knowing describes the capability to transfer knowledge between dissimilar situations. An active sense of agency is not bound by reinforced responses and static links to long-term memory. Instead, it is alive with forethought, and creative thought, and reflective thought—as if a transfer among, not transfer from.

This philosophy is consistent with the theory of situated cognition (Brown, Collins, & Duguid, 1989), which suggests that concepts are always "under construction" and evolving with each new situation or context of use (p. 33). This is the path from novice to expert.

Instruction and Assessment Methodology

Programs with Deep Focus

Moral identity is a socially situated, but individual, construct. Development of moral identity is a process of engagement in diverse experiences with alternative perspectives (Endicott et al., 2003). It cannot be reduced to a one-goal-fits-all training intervention. As suggested by the research, moral leadership capacity emerges from moral identity. It, too, follows a novice-to-expert developmental path of acquiring implicit knowledge and intuition. This is not a prepackaged affair.

Geva (2010) discusses a videogame for corporate ethics training adopted by major companies like Walmart, Kraft, and Pfizer entitled Rocked or Shocked. This novel and well-intentioned attempt to engage employees in a fast-action thrill ride replacing the annual humdrum ethics training garnered rave reviews from participants. Unfortunately, it missed the mark as a mass-produced, 60-second competition to answer ethics questions correctly or be virtually shocked by high-voltage electrodes (p. 15). Although high on entertainment value, an ethics curriculum employing torture techniques arguably offers little in the way of education.

Sternberg (2000) undertook a multiyear study in the role of tacit knowledge in military leadership, finding it to be the greatest predictor of leadership effectiveness. It is a reasonable leap, then, to suggest programs aimed at building tacit knowledge in the moral domain will have the most value in promoting the development of moral identity (Narvaez & Bock, 2002). This requires a deliberate effort in providing experiences that fundamentally alter the implicit attitudes already held by many young adults. If intuition—including implicit thoughts and beliefs—is truly the foundation of moral character, then instruction must focus on building moral schemas.

Perla and McGrady (2011) offer a candid appeal to military simulation designers to "tell better stories" about human reality and potential uncertainties rather than a sanitized version of scenarios (p. XX). They propose digging more deeply and pushing the boundaries of existing worldviews to engage intellect and emotions not normally accessible through everyday scenarios—to truly transform thinking and feeling (p. 125). If scenarios only scratch the surface of ethical dilemmas, they also offer little more than a text-based case study. The difference between instruction and immersion is analogous to knowing that versus knowing with. Moreover, moral identity emerges through experience, not description of experience.

Socially Situated Instructional Strategies

Based on the expertise model of moral character and the social intuitionist model, three instructional strategies are relevant to moral schema development: repeated experience, socialization, and deliberate coaching or instruction (Haidt, 2002; Narvaez & Bock, 2002).

Repeated experience. Scenario-based learning in virtual simulations provides opportunity to accelerate expertise in any domain (Clark, 2009) and develop tacit knowledge through extensive practice (Fisk, 1989). To transfer knowledge to novel situations, learners must be able to make what Bolhuis (2003) calls "a creative jump between what is known and what is new" through experience with

multiple tasks, teachers, and contexts (p. 340). The opportunity to explore possible solutions and make values-based decisions promotes a better chance for students to act morally (Nucci & Narvaez, 2008).

The United States Naval Academy is committed to developing ethical leaders through simulated ethical-leadership experiences that increase "moral muscle memory." The United States Air Force Academy shares a similar philosophy by creating opportunities for "doing" leadership, both through planned exercises as well as lived experiences (Jackson, Lindsay, & Coyne, 2010). A philosophy that encourages a systematic exposure to leadership scenarios with the opportunity to experience errors (Goodman, Wood, & Chen, 2011) also complements Jackson et al.'s contention that overcoming hardship (Moxley & Pulley, 2004) and academic challenges (Day, 2000) are valuable for leadership development. Indeed, dilemma training helps military cadets recognize ethical situations and build a moral source of intuition (Baumann, 2007).

Socialization. Consistent with Stryker's (2000) theory that identities are meanings attached to the roles one plays in society, the meanings derived from playing avatar-driven roles in virtual environments can be equally as salient. For example, immersion in a virtual meeting with colleagues to create interdepartmental budget cuts calls upon an identity compatible with both business acumen and social diplomacy—skills not typically mastered yet by undergraduates. However, interacting with instructors playing experienced virtual colleagues provides a resource for building those schemas and identities.

Research suggests the strongest variable predicting college students' capacity for socially responsible leadership is the engagement in sociocultural dialogue with peers (Dugan & Komives, 2010). Moreover, conversations specifically about differences in values, lifestyles, beliefs, and cultural concerns create the greatest opportunity to understand multiple perspectives and clarify personal beliefs (p. 539). Participation in clubs and organizations may also enhance prosocial orientations and group-focused leadership goals (p. 539). Further, perspective-taking activities, thoughtful dialogue, and courses that help students make connections with historical events are the most effective at promoting moral reasoning (Mayhew, Seifert, & Pascarella, 2010).

Intervention programs with the most success in facilitating moral development are ones that create opportunities for peer discussion of moral dilemmas and controversial topics (Cummings, Maddux, & Cladianos, 2010). These discussions expose students to multiple perspectives (p. 623) and allow them to expand their own moral schema.

Coaching and Feedback. The impact of coaching relationships cannot be overstated. In a study of almost 15,000 college seniors across the country, relationships with faculty were a significant predictor of socially responsible leadership development (Dugan & Komives, 2010). Results indicated the importance of actively engaging students in dialogue about leadership values (p. 538). Mayhew, Seifert, and Pascarella (2010) studied the factors that influence moral reasoning development among 1,469 college freshman from 19 schools. Using a matrix sampling approach, the authors determined that course content is not as important as teaching practices such as encouraging

students to interact with other students and faculty outside the classroom, challenging students to consider moral issues from broader perspectives, and creating opportunities for students to learn from one another.

Expertise and intuitions in moral functioning can be facilitated through immersive experiences with coaching and guidance (Narvaez, in press). Instructional support is critical in virtual learning experiences and simulations. The instructor is the key facilitator of dynamic assessment—carefully structured feedback provided throughout the virtual learning experience based on the real-time performance of the learner (Lajoie, 2003). Contrary to the constructivist paradigm supporting much of the virtual learning community, Sweller and his colleagues have determined the inadequacy of a minimal guidance approach to instruction (Kirschner, Sweller, & Clark, 2006). He cautions that learners risk acquiring incomplete or false knowledge when left to their own unassisted inquiry (p. 84), so deliberate guidance is critical.

During virtual simulations, feedback can be provided in several ways. Hattie & Temperley (2007) suggest that feedback specific to the scenario should focus on faulty interpretations, but also be balanced with feedback about the processing strategies involved in the task (p.93). Lajoie and Lesgold (1992) contend that knowledge of the novice-to-expert trajectory is essential in determining appropriate feedback, such as recognition of underlying principles, quality of mental models, procedural efficiency, automaticity, and metacognitive skills. The incorporation of explanatory feedback has been discovered as a critical element to success in multiple studies (Issenberg et al., 2005). Clark and Mayer (2006) encourage instructors to provide memory supports and process guidance as well (p. 362).

Instructional feedback following simulations is vital to assist learners with reflection about their experience and performance (Clark & Mayer, 2006). Rieber, Tzeng, and Tribble (2004) discovered that the active engagement in the simulation prevents most learners from reflecting on their processes, making it essential to accomplish afterwards. It is precisely this act of cognitive appraisal and reflection that builds efficacious beliefs about applying new skills (Bandura, 1986)—the ultimate goal of training transfer. In essence, reflective dialogue seals the deal on how the experience contributes to identity development.

Dynamic Assessment

The Defining Issues Test (DIT) is the standard measurement of moral reasoning and a tool validated by over 1,000 studies (Rest, Narvaez, Thoma, & Bebeau, 1999). Using the DIT-2, Temperlin and Christensen (2009) measured 10-year outcomes of imbedded ethics education in a university business school that revealed improvements in increasing resolve to act consistently with values, moral courage, service to others, admitting mistakes, keeping promises, and caring for others (p.71). However, moral identity is an evolving construct and thus difficult to measure. The DIT provides a valuable assessment of training effectiveness, but it does not offer a real-time indicator of moral identity formation.

Instead, one approach to evaluating the real-time effectiveness of a training strategy is through

dynamic assessment. Lajoie (2003) describes dynamic assessment, or the moment-to-moment assessment of learners, as the key to providing feedback during problem-solving. Lajoie's theory that moment-by-moment assessment drives contextual feedback is a modern application of Vygotsky's (1978) zone of proximal development, or the interval between a learner's current ability and what the learner can accomplish with support. The goal of dynamic assessment is to enhance learning in real time. When access to experts and expert trajectories are provided to learners, transitions along that trajectory can be more easily monitored by both student and instructor.

However, soft skills and developmental processes such as leadership and moral development are more difficult to assess than measurable technical skills. Assessment imbedded in instruction as proposed by Lajoie may be a viable approach in lieu of traditional assessment methods. An effective way to accomplish this in a virtual environment is to immerse the instructor as an active participant in the simulation rather than as an observer or guide. This situates the instructor in the scenario where seamless adjustments can be made without disturbing the flow of the enactment. Whether playing the role of antagonist or advisor, the cognitive modeling offered by an expert instructor provides critical insights into decision-making processes.

Limitations

This highly customized approach to simulation training is not without limitations. The scenario construction, instructional design, and technical program may require multidisciplinary collaborations among instructors, computer programmers, instructional designers, training specialists, subject matter experts, and psychologists trained in cognition and human factors. The financial investment is a significant consideration. Further, the instructor-to-learner ratio must be extremely low to achieve the incremental benefits of dynamic assessment. Simulations are domain-specific, so the learner population for each program is limited. However, the current proposed use of moral leadership simulation is targeted to the military population, which is already one of the largest users of virtual reality training (Blascovich & Bailenson, 2011). Further, adaptations to existing virtual platforms may provide a less costly alternative.

Conclusion

In conclusion, participation in simulated scenario-based experiences can build implicit attitudes upon which moral action is based. Instructional use of the expertise model of moral character for moral identity development is supported by theories of situated learning (Brown, Collins, & Duguid, 1989) and social intuitionism (Haidt, 2002). Research validating the Proteus Effect (Yee & Bailenson, 2007), the influence of avatar identity on behavior and subsequent carryover from virtual experiences to the real world, lends further support for the use of virtual reality training to accelerate expertise in the moral domain and provide the prerequisite foundation for both moral identity and moral leadership.

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