

Video Games and English Idioms: Toward Effective Learning

Ra'ed Awad Al-Ramahi

Dr. Adnan Smadi

The University of Jordan

Faculty of Languages

Aqaba-Jordan

Abstract

Learning English requires real life contexts where the stretches of language can be natively communicated. In addition, efficient learning of English in general is affected by the amount of exposure that EFL learners are expected to receive. Therefore, learning English cannot happen to be sufficient if it takes place only in classrooms, particularly in a non-native context. In fact, the learners can find a new scope for learning through video games that help enriching the learners' linguistic repertoire as well as creating an interactive communication with English. This research aims at exploring the role of video games in building up constructive learning of English idioms. The research also shows the significance of these games in creating full interaction between the players and the social contexts where idioms exist. Furthermore, it highlights on the motivating sense that such games can create, which leaves a tremendous effect on the learning of idioms within real life contexts. The criterion of the research is based on the constructivist learning theory.

Keywords: EFL learners, video games, interactive communication, idioms, real life contexts, and constructivist learning theory

1. Introduction

Learning English normally takes place in classrooms, especially when taught in non-native countries. However, language learning cannot be restricted to classrooms since the amount of language exposure there is not enough. In fact, the amount of exposure to English in such countries can be raised through implementing technology in language learning. In other words, technological devices such as T.V, computer, and video games can help raising the amount of exposure to the intended language. These devices make available stretches of language through filming, didactic programs, or pedagogical games.

For long time, parents have negatively viewed video games for they are full of violence. Most of these games, in fact, are based on fighting and shooting. Dave Grossman and Gloria Di Gaetano (1999) state that critics express the opinion that video games impart only negative messages and, in the words of one, "teach our kids to kill." On the other hand, Kathleen Fackelmann (2001) argues that psychologists stress the idea that games are an important means through which children learn to understand their world. Video games or even some technological devices that are used by children or young learners could contribute to offering new styles of learning that cannot be offered by parents or teachers. Green and Hannon (2007:38) comment, "Children are establishing a relationship to knowledge gathering which is alien to their parents and teachers." Adding to that, some scholars emphasize that games improve skills in communication and collaboration, problem solving, and various number-related skills (MCFarlane, Sparrowhawk & Heald, 2002).

The whole idea of learning via unconventional techniques has been the core of recent researches. Thus far, "the promise of games is that we can harness the spirit of play to build new cognitive structures and ideas of substance" (Klopfer et al.2009). One of the benefits of games in learning as Squire (2011) indicates is that they allow players to adapt their complexity levels while playing. Besides, students in the traditional classroom may feel stuff is too hard or too simple, and they cannot try on different learning techniques or use another problem solving method without the risk of failing. For these reasons, video games can make a good opportunity for learners to marriage between the idea of playing and risk taking, which leads them at the end to build up linguistic models-idioms- within less tensed atmosphere as the one in traditional classrooms.

Since recent versions of video games have become highly sophisticated, this has helped designers of these games to implement linguistic exercising in an entertaining and challenging style. Video games are with high potentials to make available real life contexts where players can easily communicate the vocabulary of English. Harmer (1991:153) points out the importance of vocabulary learning by saying "If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh." Likewise, Folse (2004: 26) states, "people can generally communicate their meaning with less than perfect grammar whereas incorrect use of vocabulary can substantially impede communication"

Idioms as part of English vocabulary system have been problematic for learners of English. An idiom is "an expression whose meaning cannot be predicted from the usual meanings of its constituent elements" (*Webster's Dictionary* 1994). Thus, idioms could not be interpreted literally within contexts. If idioms are interpreted literally, then the communication cannot take place. In a study of conversationally conveyed requests, Clark and Lucy (1975) found out that subjects first understood the requests at a literal level and then, only if this interpretation is contextually inappropriate, make their non-literal interpretations. The study, in fact reveals the significance of context in relating the intended meaning of language. In this respect, video games can make available different contexts where idioms can be easily tested and interpreted within different social contexts.

Makkai (1972) indicates that idioms encode complex conceptual representations that in no way equate to literal paraphrases. One of the main problems with some standard views of idioms is that the logical entry is mistaken with the overall idiomatic meaning or used as a definition of its meaning. Adding to that, idiomaticity has been viewed as a semantic rather than syntactic phenomenon and so as falling outside the scope of syntax (Nunberg et al. 1994). On the other hand, Kharma and Hajjaj (1989:73) associate the idiomaticity with nativity of language. They say, "the foreign learner of English who tries to avoid them-idioms- will immediately single himself out as a foreigner".

2. Literature Review

Recently the use of technology in language learning has been the concern of a large number of educationalists for its great benefit in facilitating the process of learning. For long, the electronic games have been used to present stretches of language without implementing such stretches within real life contexts. Mainly, technology has helped educationalists and games' designers to build up models of words and their meanings or even words and their pronunciations. The early versions of Leapster, Vtech and Nintendo DS are examples of traditional electronic games that were based on presenting the linguistic stuffs without having enough real life contexts.

With the advancement in the field of electronic games by 1980s, digital and video games were the concern of educationalists as tools that could help building up certain skills for players. Digital games, game console, or handled-based, are based on "purposeful, goal-oriented, rule-based activity that the players perceive as fun" (Klopper: 2008). In fact, for many years, the advances in the video game industry were primarily reserved for higher bits and resolutions. However, the last several years have witnessed great technical and conceptual advances in video games, which ultimately can contribute greatly to the cause of learning games (Mok: 2002).

The use of video games in an educational context is an area of growing research interest. Research has consistently shown that playing computer games increases reaction times, improves hand-eye-co-ordination and raises players' self-esteem (Lawrence, 1986). Moreover, video games have been used to help develop social skills in children and adolescents who have severe cognitive disabilities and developmental problems (Demarest, 2000).

The Tactical Language and Culture Training System (TLCTS) is a good example of how the video games can be used in language learning. It is designed to help learners acquire basic communication skills in foreign languages and cultures. Learners acquire knowledge of foreign language and culture through a combination of interactive lessons and interactive games that give trainees concrete contexts in which to develop and apply their skills. It focuses on spoken communication, nonverbal communication, and cultural knowledge relevant to face-to-face communication. TLCTS is an example of a serious game applied to learning (Johnson et al., 2005).

Historically speaking, EFL learners have experienced learning English idioms through traditional approaches. That is to say, they have been taught through brainstorming. Bromley (1984) recommends having the class produce a dictionary of idiomatic sayings. Through brainstorming, the class can produce list of expressions, and then each student can choose one or two to illustrate. Individual students could also create dictionaries of their own by reviewing their parents and older relatives to find out what their favorite expressions and proverbs are.

The other way of learning idioms is through dramatizing them. Kenyon and Daly (1991) reported a higher rate of successful idiom recall for students who wrote, acted out, and videotaped their own skits portraying selected idioms than for students who explored the same idioms through extended class discussion. Moreover, the idioms have been taught through paragraph completion. According to Irujo (1986), the teacher can write a paragraph or dialogue containing an idiom in context, but the idiom is omitted. Students then complete the passage with a phrase that fits the context. When this has been done correctly, the omitted idiom can be given, and the students can be shown how they already inferred the idiom's meaning from the context. Furthermore, idioms have been taught through dividing them into categories, idioms in cartoons, and idioms from TV shows.

3. Methodology of the Research

The research is mainly based on the theory of constructivism (see Scholnik, Kol & Abarbanel, 2006). The constructivist convention states that a learner actively constructs new ideas based around existing knowledge. In addition, constructivism puts emphasis on the importance of collaboration in learning, or knowledge construction as a social process.

4. Video Games and the Constructivist Learning of Idioms

Learning is the final product of a long interactional process. As the theory of constructivism emphasizes the significant role of learner in constructing and interpreting the meanings of linguistic expressions based on learner's personal experience with the language, video games have proved to be the idealized environment where such experience with language could be utilized. Salmon, Perkins, and Globerson (1991) argue that the effect of technology is more lasting because of student's mindful engagement with the tool. Moreover, constructivism assumes that individual students construct knowledge by looking for shared meanings within a particular social context (Richardson, 1997).

Being free to make mistakes during gaming, it helps to create an effective learning. According to the theory of constructivism, learning takes place when individuals are able to make use of their existing knowledge and experience to make sense of new material. Lessons are structured around problems, questions, and situations that may not have one correct answer (Goldberg, 2002). The learners, through gaming, are expected to make a lot of mistakes, which sometimes cause their death as fighters or racers. However, this failure might become part of the fun and central to learning. Stan Goto (2003) has discussed that "at risk" learners need "horizontal learning" which enables gamers or learners to explore the area they are about to learn, to see what is there and what the lay of the land is, before they are forced up the vertical learning ladder of ever new skills. In other words, they need to view failure as informative and part of the game, not as a final judgment or a technique that hinders creativity.

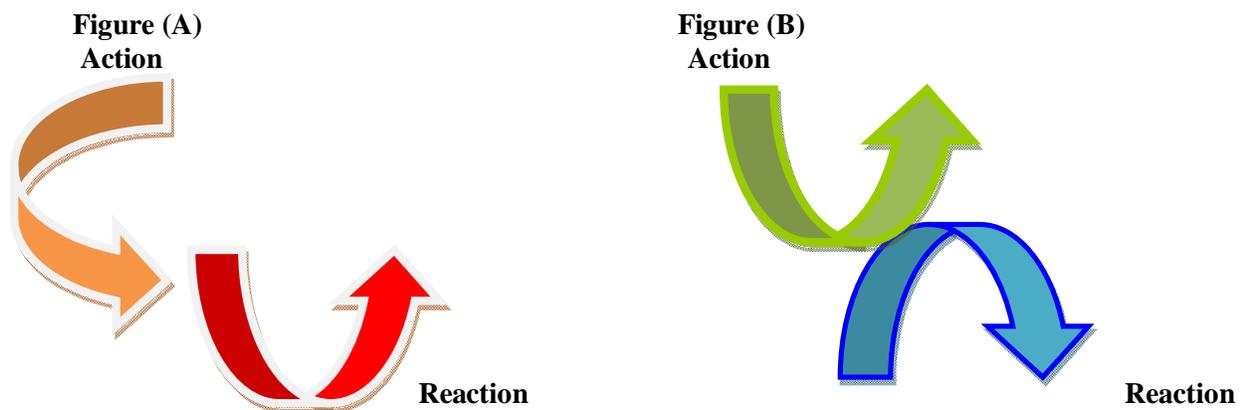
The basic problem that normally faces learners of idioms is their inability to stand the amount of mistakes they might make through interpreting them literally during the normal class structure. Within the game structure, they are given thousands of chances within safe environment to experience such idioms. They are expected to interpret them literally first hand, and then, through failing to communicate the metaphorical sense of such idioms that are basic parts of natural conversations within the gaming context, they retry such communication until they reach the new sense given to the individual words that make a semantic unit. Let us consider the following idiomatic expressions in order to check how the prospective video games can best implement them in a recreational constructivist way:

- black sheep of the family
- come out of your shell
- cost an arm and a leg
- fight tooth and nail
- walk on eggs
- miss the boat
- touch and go
- rain cats and dogs

The scenarios of the game are expected to include very short conversations that lead the fighters, racers, soldiers or any characters included within the game to perform their own missions well. However, efficient game players are expected to play different roles during the period of gaming.

Those players, who might not understand the conversations that are expected to include idioms, might be threatened during the course of gaming because they are not responding effectively to the orders or explanations of expected dangers communicated through these short conversations between the characters. The whole technique of presenting the idioms during the gaming is based on the expected reaction of players toward such idioms. The players who take certain roles as fighters or racers are expected to fail in interpreting these idioms first hand. The trials might be repeated to act after each conversation, however, the miscommunication of the message given within each conversation because of misinterpreting the key structure-idioms- will lead the player to failure. Such failure is a motivating one that creates stimuli inside the players.

The idea of presenting the idioms within games as part of action and reaction helps learners to communicate with these idioms. In effect, the more the players- learners- are expected to effectively communicate with these idioms, the better performance they might have within the course of gaming. The idea of action (message encoded within conversation) and the expected reaction (players' response to this message) helps reinforcing the learning of these idioms. The inability of players to react well causes their death as fighters or racers. This idea can be represented in figures A and B:



As shown in figure (A), the reaction (response to the message encoded in the action) smoothly and systematically occurs while the reaction in figure (B) takes other direction than the one that is folded in the action (message). Figure (A) can best represent the idea of game players' well decoding of the message with its idiomatic sense. On the other hand, figure (B) represents the misinterpretation of the message encoded, which might lead the players to respond wrongly. Such wrong response causes the failure. The repetition of the game makes it easy for the players to be able to interpret the message in the right way and so avoid failing one more time. For example, the player, through conversation, might get the following idiom *touch and go*. The dialogue might go this way:

Conversation (A)

Fighter (1) says: it is touch and go.

Fighter (2) responds: okay, I will try to take the other way.

Conversation (A) between two fighters contains an idiom. Once it is interpreted correctly, it will make fighter (2) avoid death. Such a conversation can be a model of hundreds or thousands of conversations that could be saved within the suggested scenarios shown in video games. At first hand, the game player might interpret this idiom literally by interacting with the verbs 'touch' and 'go' individually. Then, after experiencing death more than one time, the player is expected to think seriously of what a new relation that could exist between the two verbs together. Finally, the player could conclude that there is a strong relation between the repeated loss and these two verbs together. The player later on could interpret the idiom *touch and go* as *very risky*. Expertise is formed in any area by repeated cycles of learners practicing skills until they are nearly automatic, then having those skills fail in ways that cause the learners to have to think again and learn anew (Bereiter& Scardamalia 1993).

Experiencing the language is the core point in constructivist learning. Such experience of language seems to be psychologically safer in video games than in classrooms since the learner is given thousands of chances to improve certain linguistic behavior. In classroom, the learner might be limited with the amount of chances that he or she might be given by a teacher. Gee (2003) indicates that most players undertake games in the knowledge that failure is a possibility.

They show a willingness to experiment in their game-play, and to try on different roles from leader to follower. It has become clear that video games personalize the learning experience; therefore, the failure to match the correct linguistic practice seems to happen smoothly in game. On the other hand, it is very hard experience within classroom-structured context.

5. Video Games and the Learning of Idioms within Social Contexts

Learning idioms through video games does not happen through direct instructing. The games are usually based on presenting scenarios where social interaction between characters could be established. The players can easily choose those characters according to the roles they desire. The players' roles within specified social contexts help them construct certain cognitive abilities that lead into selecting certain verbal representations. Brown, Collins & Duguid (1989) indicate that familiar aspects of Social Constructivism include situated learning, where students engage in activities directly relevant and applicable to the concepts and context in which the learning will be applied. In fact, such learning within certain contexts that can be offered by video games affects the mastery of idiomatic expressions. The positive effect of situated learning is that it not only helps learners to build up their linguistic repertoire, but it also constructs social models where gamers' linguistic structures are socially communicated.

Idioms as part of the linguistic structure can be communicated within specific social contexts. The game players are expected to socialize with as many idioms as it is socially needed. The successful communication, indeed, cannot be effective unless the players appropriately use the right idiomatic expressions. Thus, the sensitivity toward correct choices of idioms raises the stimuli towards mastering the idioms communicated within certain social contexts, which leads the game player to score high. The achievement whether on the level of language or game performance go side in side. Richardson (1997) points out that on a social level, constructivism assumes that individual students construct knowledge by looking for shared meanings within a particular social context.

The game players' recognition of the relation established between the idiom and the social context where it exists helps developing their ability to use such an idiom within similar social contexts in real life. Video games, therefore, make available safe practice of such conventionalized metaphors, idioms, within made up social contexts that are parallel to the ones in real life English. Indeed, such a practice can offer a sort of drilling that is not threatening even though the game player might succeed or fail in communicating the appropriate meanings of idioms. Learning idioms through various methods cannot offer the same degree of competitive atmosphere like the one offered by video games. Conversation (B) and Figure (C) can help to clarify the idea of contextualized learning through video games:

Conversation (B)

Speaker A: Do you have an umbrella?

Speaker B: No, I don't. Why do you want it?

Speaker A: Don't you see. It is raining cats and dogs outside.

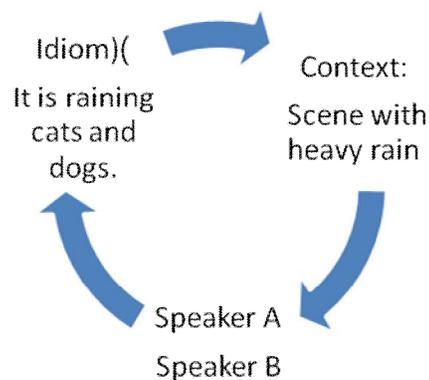


Figure (C)

As shown in Conversation (B) and Figure (C), the context whether linguistic or non-linguistic helps the communicators to decide on the meaning of the idiom *it is raining cats and dogs*.

In fact, video games offer contextualized learning that helps players to better practice parts of language within conditioned environments similar to the ones in real life English. Gee (2011) comments, "humans are poor at using verbal information when given lots of it out of context and before they can see how it applies in actual situations". Furthermore, Gee (2003) elaborates on the importance of video games in building models that can enable players to explore real life experiences. According to Gee, video games can offer entry points into subject matter or ways of interacting with information that leads players to investigate further, outside the game.

Videogames or simulations normally present situations where players are expected to fully engage in. If no full engagement might take place, the players are expected to score low, and so the game is ended soon. This feature forces the players to be fully involved in order to keep the game going on. Such feature motivates the players to raise their sensitivity towards the social context where the practice of idioms takes place. Making use of the socially conditioned language practice grows in the minds of players the contextualized meaning of idioms and other linguistic structures. Trent, Artiles & Englert, (1998) indicate that simple learning can be accessed through various methods, but acquiring complex skills requires social interactions in situated contexts, which allows learners to see how the various parts of the process fit together. Additionally, one major finding of a recent study indicates that the social interaction related to playing digital games increases student engagement (Lehnart et al., 2008).

6. Video Games and the Motivating Sense

Video games highly contribute to creating learners' motivation. As learning takes place within a safe environment where game players find no threats as the ones that might be encountered in classrooms, they seem to experience language with full motivation. Bonk and Dennen (2005) comment that "games are motivational, in part, due to their uncertain outcome and the focus on a goal or challenge that the user needs to accomplish." Motivation is also made through game playing. That is, the game players are directed through the course of playing to implement their experiences in order to score high within the setting of the game and so they build up new experiences. The new challenges encountering players can raise the amount of motivation. Such increasing motivational sense can be utilized to create hypersensitivity towards the intended language included within the video games.

Motivating sense is usually created before playing video games because the game players normally develop certain thoughts that games offer unusual experiences within certain created world. The imaginative world where they can move and experience various lifestyles creates their intrinsic motivation that leads into their acceptability to add new experiences. Thus, the game players are able to face challenges smoothly within this world. The created world might be made of cartoon characters that are known to game players, especially children. They then might play the role of Barney, Sponge Bob, or Bob the Builder. Such a role-play creates their interest to continue playing and so practice certain linguistic exercises. Schaffer (2006) stresses that games promote understanding, motivation, and enjoyment, and are terrific at immersing players in complex, feedback-rich problem spaces.

Moreover, the design of video or even digital games is based on an interactive process. That is to say, the players are expected to be active all the time in order to deal with challenges and solve problems and so they keep moving from one stage into another easily. Video games essentially create a model environment where stimuli and responses exist together. Gee (2011) indicates, "when the player does something, the game does something back that encourages the player to act again." This feature can help educationalists and games' designers in implementing the idiomatic expressions within the challenges, and so the language practitioners or game players are supposed to master such idioms in order to deal with such challenges and complete the course of the game with high scores. If the game includes two players, the sense of competitiveness will be increased. Bonk and Dennen (2005) point out those game players must develop skills and strategies in order to win or achieve a goal.

In a video game that is supposedly designed around Barney's character and his friends, the game is expected to take place based on Barney's attitudes towards other characters and his language that is full of idiomatic expressions. The game player might take the role of Barney or any other character. The challenge of the game is created through characters' communicating these idioms. That is, Barney utters certain idiom, and so the response of other character to this idiom could decide on whether the challenge is overcome or not. The following images clarify the idea.



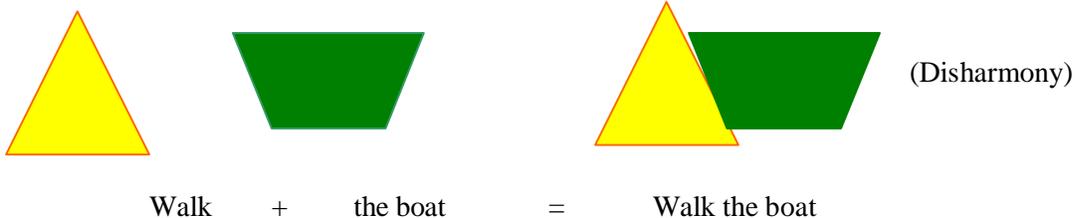
Please, take care of your glasses. They cost an arm and a leg.

Okay, don't worry. I will be careful about them. How much are they?

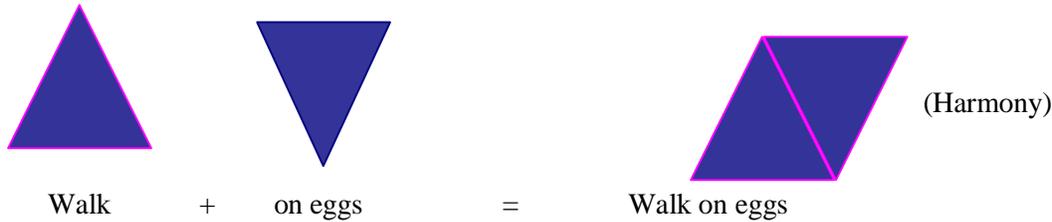
The game could also be designed in a way that certain cartoon characters have certain missions. One of these missions is to form certain idiom by collecting its parts. For example, the game player might take the role of Bob the Builder, a character that can design certain shapes. The shapes can be made of different pieces. On each piece, a written part of an idiom exists. These pieces could only be attached together once they form the intended idiom correctly. In fact, the motivating sense that can be created in this way is that the game player could not have the mission performed correctly unless there is full understanding of how the parts of idioms are made in the right way. By multi trials, the game player can build up cognitive abilities on how the parts could hang together. Upon understanding the relations between the harmonious shapes, the parts of idioms can hang together in a harmonious way. The following image could explain the idea clearly. The parts are arranged disharmoniously in shapes **A**. In contrast, they are arranged harmoniously in shapes **B**.



Shapes A:



Shapes B:



Game designers with the help of linguists could make use of certain ideas that are related to the nature of some TV series. That some cartoon characters have certain missions to perform makes a fruitful side that the video game designers could implement in games. Dora, a cartoon character that attracts children, has certain missions to perform. She needs to move from a place into another facing challenges in order to accomplish these missions. In effect, idioms could be easily implemented within Dora's missions and targets. This might help creating an emotive sense that leads the learner – game player- later on to the mastery of the idiom under focus. The following image showing Dora's character helps clarifying the idea.



7. Conclusion

Digital games can help facilitating the learning of idioms since these games provide a non-conventional method of teaching and learning. Instead of direct instructing within structured classroom contexts, the video and digital games present language in an unconventional manner and even force the players to practice such language subconsciously. This all happens through mixing between entertainments, goal oriented games, and the cartoon characters presented in the games, which are highly appreciated by children and sometimes adults. Video games also help presenting language as a non-separate element from the social scene or context. That is, language is communicated within an authentic context during the course of playing. Therefore, it highly affects the idiomatic repertoire in the language of the players, who are at the same time learners. This research is essentially an invitation to both linguists and game designers to cooperate in order to come up with innovative ideas that serve the advancement in this field.

8. References

- Bereiter, C. & Scardamalia, M. (1993). *Surpassing ourselves: An inquiry into the nature and implications of expertise*. Chicago: Open Court.
- Bonk, C. J. and Dennen, V.P. (2005). *Massive Multiplayer online gaming: a research framework for military training and education*. Madison. Wisconsin.
- Advanced Distributed Learning at
http://www.strategicleader.us/ExperientialLearningPapers/GameReport_Bonk_final.pdf
- Bromley, Karen. (1984). "Teaching Idioms." *The Reading Teacher* 38: 272-76.
- Brown, J. S., Collins, A., & Duguid, P. (1989). *Situated cognition and the culture of learning*. *Educational Researcher*, 32-41.
- Clark, H., & Lucy, P. (1975). *Understanding what is meant from what is said: A study in conversationally conveyed requests*. *Journal of Verbal Learning and Verbal Behavior*, 14, 56-72.
- Dave Grossman and Gloria Di Gaetano. (1999). *Stop Teaching Our Kids to Kill*, Crown.
- Demarest, K. (2000). *Video games- What are they good for?* <http://www.lesstutor.com/kd3.html>

- Gee, J.P. (2003) *What Video Games Have to Teach us about Learning and Literacy*. New York, NY: Palgrave Macmillan.
- Gee, J.P. (2011) Reflections on empirical evidence on game and learning. Ed. S. Tobias& J.D. Fletcher. *Computer Games and Instruction* (p. 223-233). Charlotte, NC: Information Age Publishers.
- Goldberg, M. F. (2002) 15 School questions and discussion: from class size, standards, school supply to leadership and more. Lanham, MD: Scarecrow Press.
- Goto, Stan. (2003). Basic writing and policy reform: Why we keep talking past each other. *Journal of Basic Writing*, 21: 16-32.
- Green, H and Hannon, C. (2007) *Their Space: Education for a digital generation*, online version, <http://www.demos.co.uk/files/Their%20space%20-%20web.pdf>
- Folse, K. S. (2004) *Vocabulary myth: Applying second language research to classroom teaching*. Ann Arbor, MI: The University of Michigan Press.
- Harmer, J. (1991) *The Practice of English Language Teaching*. New York: Longman.
- Irujo, Suzanne. (1986) "Don't Put Your Leg in Your Mouth: Transfer in the Acquisition of Idioms in a Second Language." *TESOL Quarterly* 20:287-04.
- Johnson, W.L. & C. Beal, C. (2005). Iterative evaluation of a large-scale, intelligent game for language learning, In C.-K. Looi et al. (Eds.), *Artificial Intelligence in Education* (pp.290-297). Amsterdam: IOS Press.
- Kathleen Fackelmann. (2001) "Very Young Kids Absorb Tragedy" *USA TODAY*.
- Kenyon, Patricia, and Kimbertly Daly. (1991) "Teaching Idioms." *Perspectives in Education and Deafness* 9:12-14.
- Klopfer, E. (2008) *Augmented learning: Research and design of mobile educational games*. Cambridge, MA: MIT Press.
- Klopfer, E., S. Osterweil, and K. Salen (2009) *Moving Learning Games Forward*. The Education Arcade, Massachusetts Institute of Technology. Available at http://education.mit.edu/papers/Moving Learning Games Forward_EdArcade.pdf
- Lawrence, G. H. (1986) *Using Computers or the Treatment of Psychological Problems*. *Computers in Human Behavior*, 43-62.
- Lenhart, A., Kahne, J., Middaugh, E., Macgill, A., Evans, C., & Vitak, J. (2008). Report: Teens, Pew Internet and American Life Project. Retrieved April 20, 2014 from <http://www.pewinternet.org/Reports/2008/Teens-Video-Games-and-Civics.aspx>.
- Makkai, A. (1972) *Idiom Structure in English*. The Hague: Mouton
- McFarlane, Sparrowhawk, & Heald, Y. (2002) Report on the Educational Use of Games. TEEM (Teachers Evaluating Educational Multimedia).
- Mok, W. (2002) Wireless online games. *The Electronic Library*, 113-119
- Nunberg, G., I. Sag& T. Wasow (1994) Idioms. *Language* 70/3: 491-538.
- Richardson, V. (1997) *Constructivist teacher education*. London: The Falmer Press.
- Salmon, G., Perkins, D., & Globerson, T. (1991). Partners in cognition: extending human intelligence with intelligent technologies. *Educational Researcher*, 20(3), pp.2-9.
- Schaffer, D. (2006) *How computer games help children learn*. New York: Palgrave Macmillan.
- Scholnik, M., Kol, S., & Abarbanel, J. (2006) Constructivism in theory and in practice. *English Teaching Forum*, 44(4), 12-21.
- Squire, K. (2011) *Video Games and Learning: Teaching and Participating Culture in the Digital Age*. New York: Teachers College Press.
- Trent, S., Artiles, A., & Englert, C. (1998) From deficit thinking to social constructivism: A review of theory, research, and practice in special education. *Review of Research in Education*, 277-307.
- Webster's Encyclopedic Unabridged Dictionary of the English Language. (1994). Avenel, NJ: Gramercy Books.