

Using Game-Based Learning Activities to Promote Foundational Literacy Skills, Inclusion, and Equity

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Learning-by-doing is one of the influential concepts that the prominent American philosopher and education reformer, John Dewey (1859-1952) emphasized. The purpose of the paper is to demonstrate how foundational literacy skills, inclusion, and equity can be achieved through game-based learning activities. Foundational literacy skills include phonological awareness, phonics, and word knowledge which are the essential skills to master vocabulary skills—reading, spelling, and semantics. The three game-based activities are scaffolded to achieve the purpose of the paper. The 1st activity promotes the foundational skills necessary to build vocabulary skills. The 2nd activity builds upon the 1st activity and reinforces vocabulary learning and the understanding of sentence structures. The 3rd activity reinforces the vocabulary learning for the first two activities. It helps children who cannot sit still move around and learn at the same time. It enhances fine and gross motor skills, attention, memory, listening, speaking, reading, and writing as well. The three game-based activities are designed to engage learners to play and learn together with equal learning opportunities. Teaching and learning are mutually inclusive. When teaching is effective, learning is effective as well.

Keywords: game-based learning, foundational literacy skills, inclusion, equity

Reasons and Challenges

Based on research, there are three major reasons/challenges for the topic:

Reading Has Been a Problem for Many U.S. School Children

According to Lee, Grigg, and Donahue (2007), more than one-third of the 4th graders in the U.S. cannot complete their schoolwork successfully due to low reading levels. In order to read well, one needs to be equipped with essential skills to sound out words and understand how each vocabulary word is formed. Vocabulary and reading comprehension are highly correlated (Ouellette & Beers, 2009) because readers with poor comprehension often demonstrate vocabulary deficits (Nation, Cocksey, Taylor, & Bishop, 2010). Vocabulary deficits result from poor decoding skills (i.e. lack of phonological awareness). Phonological awareness skills can help readers break down a word into one or more syllables, break down each syllable into phonemes (phonemic awareness), and associate letters with phonemes (spelling, phonics). Therefore, classroom teachers do need to have sufficient and conscious content knowledge of the English language, so learners can be well instructed to acquire language skills. In addition, parents (home teachers) can be well coordinated with classroom teachers

Practicing Effective Inclusion Is Still an Issue in Today's Education

Practicing effective inclusion is still an issue in today's education due to immigration and the difficulties of dealing with children with disabilities including English language learners (Chen & Chen-Worley, 2015; Chen-Worley, 2023; Cook et al., 2020).

School Teachers Require Essential Linguistics and Understanding How Language Works

Many school teachers are not well trained in essential linguistics (Y. S. Freeman & D. E. Freeman, 2014).

Essential linguistics is the conscious content knowledge of the English language. In other words, it is what teachers need to know to teach reading, ESL, spelling, phonics, and grammar according to Y. S. Freeman and D. E. Freeman (2014). To be specific, school teachers need to understand how language works (Chen & Chen-Worley, 2011). Learners are diverse with different levels of performance and needs. Depending on the nature of a subject topic and types of learners and needs, the instruction needs to be differentiated with different teaching approaches and methods. For example, the game, Simon Says, is effective in teaching sentences with commands. Through the activity, learners learn to follow the directions by listening and paying attention, exercise both fine and gross motor skills, practice both verbal and nonverbal language skills, and have fun together. For any learner with verbal problems, visual aids and/or assistive technology, such as Alternative Augmentatives Communication (AAC) can be provided to play the game. With teachers' professional knowledge, experience, and understanding about how language works, learners can be well instructed to acquire language skills.

Theoretical Framework

The purpose of the paper is to demonstrate how foundational literacy skills, inclusion, and equity can be achieved through game-based learning activities. As previously stated, based on research, more than one-third of the 4th graders in the U.S. cannot complete their schoolwork successfully due to low reading levels (Lee et al., 2007). In order to read well, one needs to be equipped with essential skills to sound out words and understand how each vocabulary word is formed. Vocabulary and reading comprehension are highly correlated (Ouellette & Beers, 2009) because readers with poor comprehension often demonstrate vocabulary deficits (Nation et al., 2010). Vocabulary deficits result from poor decoding skills (i.e. lack of phonological awareness). Phonological awareness skills can help readers break down a word into one or more syllables, break down each syllable into phonemes (phonemic awareness), and associate letters with phonemes (spelling, phonics). Therefore, classroom teachers do need to understand how language works and have sufficient and conscious content knowledge of the English language, so learners can be well instructed to acquire language skills. In addition, parents (home teachers) can be well coordinated with classroom teachers.

In order to demonstrate how foundational literacy skills, inclusion, and equity can be achieved, three game-based learning activities will be introduced as examples. Foundational literacy skills include phonological awareness, phonics, and word knowledge which are the essential skills to master vocabulary skills—reading, spelling, and semantics. Teaching requires knowledge, experience, and understanding. Likewise, learning requires learners to experience and understand learning, so knowledge can be acquired. Learning-by-doing is one of the influential concepts that the prominent American philosopher and education reformer, John Dewey (1859-1952) emphasized (Williams, 2017). The concept of learning-by-doing is similar to hands-on learning,

experiential learning, and kinesthetic learning which are supported by cognitive science and behavioral science (Radvansky, 2011). Since the learning-by-doing activities will be achieved through pair and group work (game-based), they are fun and engaging and promote social learning at the same time. In the game-based learning activities, learners not only can interact with everyone in the group both verbally and nonverbally but also can inquire and reflect on their own learning. Accordingly, learning takes place in the inclusive social setting with low affective filter (in a non-threatening learning environment) without feeling embarrassed or discriminated (Krashen, 1985). All learners feel they are included and welcome in a learning community.

Hands-on Activities

Three game-based learning activities will be introduced. The 1st activity is vocabulary learning associated with phonological awareness, phonics, and semantics. Every participant will have a chance to practice phonological awareness, phonics, and semantics as a teacher and a learner.

The 2nd activity is a vocabulary learning reinforcement game by using pair and group work. All participants will be divided into two groups and stand in two lines. It means that every participant will have a chance to move to each position to become a teacher and a learner and practice all the vocabulary words that just learned in the 1st activity. Every participant also practices vocabulary words and sentence structures by asking questions and answering questions. The 3rd activity is a second vocabulary learning reinforcement activity by using a dynamic game. All participants will sit in a circle and the game rules will be announced before the activity begins.

Activity 1: Phonological Awareness, Phonics, and Semantics (Word Knowledge)

In this activity, flash cards and real objects are used to teach vocabulary words associated with knowledge (sound-object association), phonological awareness (syllable, phonemes, phonics).

Every participant will have a chance to practice phonological awareness, phonics, and semantics as a teacher and a learner. The following are examples of using flash cards to teach the vocabulary words, “watermelon” and “peach”. For the first example, “watermelon”, on the front of the flash card, there should be an image of real watermelon and on the left upper corner, there should be a big W and a small w to prompt learners to say or remember “watermelon”. The front of the flash card helps learners associate the sound with the image of watermelon, so learners can acquire knowledge about what watermelon is. On the back of the flash card, “watermelon” should be spelled out, so learners can recognize the written word, watermelon. Learners will also associate the written word, watermelon with the image and the sound of watermelon. Word recognition skills come before word spelling skills. In order to learn how to spell a word, teachers need to help learners break down a word into syllables and break down each syllable into sounds (phonemes). In this case, “watermelon” is broken down into four syllables—wa.ter.me.lon, with nine phonemes (five consonants and four vowels). Meanwhile, “er” is a grapheme associated with the vowel sound, /ə/. Through the conscious process of analyzing a vocabulary word, learners learn how to break down a word into syllables, phonemes, and phonics (sound-letter association) and further learn to remember how to spell the word, watermelon (see Figure 1). For the second example, “peach” is a one-syllable word with three phonemes (two consonants and one vowel). Meanwhile, “ea” and “ch” are graphemes associated with the vowel sound /i/ and the consonant sound /tʃ/.

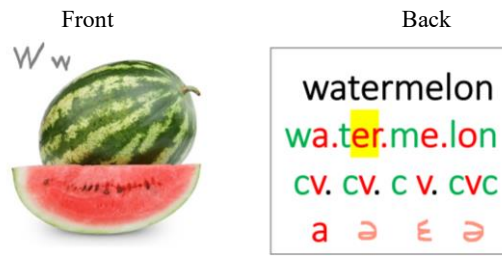


Figure 1. “Watermelon” on the flash card.

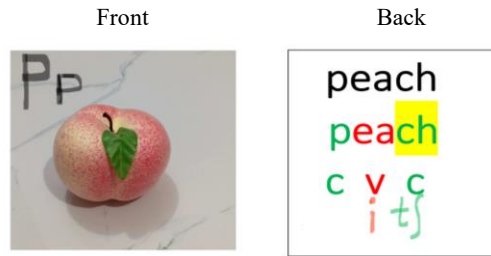


Figure 2. “Peach” on the flash card.

Activity 2: Vocabulary Reinforcement Game 1 (Guessing Game)

The 2nd activity is a vocabulary learning reinforcement game by using pair and group work. All participants will be divided into two groups and stand in two lines. Every participant will have a chance to move to each position to become a teacher and a student and practice all the vocabulary words that just learned in the 1st activity. Every participant also practices vocabulary words and sentence structures by asking questions and answering questions. In this game, the CT (classroom teacher) can pass out a small piece of paper and privately designate a fruit name, which has just been learned in Activity 1, to a participant. Have each participant write down the designated fruit name on the piece of the paper without sharing with any participant in the game. All participants standing in the teacher line, or the student line, should hide the fruit names behind their backs. Any participant standing in the student line will make a complete sentence when asking yes-and-no questions to try to guess what fruit the teacher is hiding behind the back. Any participant standing in the teacher line will answer “yes” or “no” only. In this case, participants in the student line can always practice how to ask yes-and-no questions. The classroom teacher (CT) in this case will walk around to monitor and facilitate the learning activity. Once all fruit names are figured out, all participants in the teacher and student lines should move to the next neighboring position in a clockwise direction (see Figure 3).

CT: Classroom teacher as a facilitator and monitor

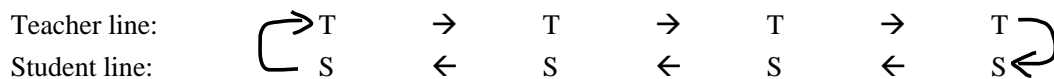


Figure 3. Vocabulary reinforcement guessing game diagram.

Activity 3: Vocabulary Reinforcement Game 2 (Identity Check)

The 3rd activity is a second vocabulary learning reinforcement activity by using a dynamic game. All participants will sit in a circle and the game rules are as follows.

1. Every participant is assigned a different fruit name from the lesson as their identity.
2. Every participant needs to make a flash card by using the fruit name designated and teach the fruit name like a teacher as shown in the flash cards (see Figures 1 & 2).
3. Every participant takes turns and repeats the fruit name a couple of times.
4. When all participants are familiar with all the fruit names for the game, the game begins.
5. At the beginning, the classroom teacher is the policeman and asks the participants to give a random fruit name from the group. The teacher will then go to find out who has the fruit name being called on.
6. A construction paper can be rolled up to make a bat used for the policeman/teacher to identify the participant who has the fruit name being called on.
7. The participant with the fruit name being called on should shout out another fruit name to direct the policeman/teacher to search a new identity. If the policeman/teacher catches the participant being called on before he/she shouts out a different fruit name, the participant being called on now has a record of being caught and will come out to be a policeman/teacher.
8. The previous teacher/policeman will then call on a fruit name for the current teacher/policemen to repeat the search process.
9. In the end of the game, whoever has the record of being a teacher/policeman three times will need to teach a new fruit name or tell a story, or a joke related to any fruit name for the lesson.

Conclusion

The 1st activity promotes the foundational skills necessary to build vocabulary skills. The 2nd activity builds upon the 1st activity and reinforces vocabulary learning and the understanding of sentence structures. The 3rd activity reinforces the vocabulary learning for the first two activities. It helps children who cannot sit still move around and learn at the same time. It enhances fine and gross motor skills, attention, memory, listening, speaking, reading, and writing as well.

The three games are designed to engage learners to play and learn together with equal learning opportunities. If some learners like to move around, these games can not only promote these learners' learning interest but also meet their special needs. Teaching and learning are mutually inclusive. When teaching is effective, learning is effective as well.

Research Study

The activities can be considered as an example of intervention strategies for promoting foundational literacy skills. The pretest can be conducted before the intervention strategies are applied. The post-tests can be conducted after three months' and six months' interventions.

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