The Curriculum Material Center's Vital Link to Play and Learning: What's the Connection?

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Abstract

Many educational theorists who study child development concur that the importance of play related materials in schools, homes and libraries is vital to the concept of play and learning. As academic librarians responsible for information literacy, and as the education liaison for the management and collection development of the instructional component in the Curriculum Materials Center, the authors of this paper will explore valuable connections between children's play and learning. Further, they will discuss how that association affects a child's cognitive development as seen through the curriculum materials and the educational support for teachers who work closely with students.

Introduction

There are many who agree that play and learning is vital to a child's development. For example, it is interesting how Friedrich Froebel, the creator of kindergarten and Fred Rogers of Mr. Roger's Neighborhood of make-believe, had so much in common. Both men in their unified, yet distinct traditions left us legacies which reaffirmed the importance of linking children, play and learning. Froebel (1912, p.50) believed that, "Play [was] the highest expression of human development in childhood for it alone is the free expression of what is in a child's soul." Years later, Mr. Rogers also proclaimed that, "Play gives children a chance to practice what they are learning." (Auerbach, 2006) .Worlds apart in culture and way of life, Froebel a German educator, and Rogers, an American children's television series creator, both men voiced the importance of play and its relationship to learning as co-equals in childhood educational psychology.

How well we learn depends on our brain development which relies on our environment and inherited genes. The brain processes, uses and interprets information and knowledge it receives from instructional, physical, emotional, cognitive, social and other experiences. Therefore learning takes place when the brain responds to the messages it receives. The works of Jean Piaget and Lev Seminovich Vygotsky, pioneers in the field of educational psychology, show the link between children and cognition, and literacy. Other researchers and educators have continually supported the fact that children learn when they play. Studies have indicated that by providing young children and infants with appropriate and stimulating experiences, their neurological, cognitive, brain, physical and motor skills abilities are enhanced.

For example, Bodrova and Leong stated that when play is integrated in the classroom, cognitive skills in thinking, reading, and comprehension in children increase, thus elevating the knowledge level and aiding to build language, social and emotional development. Also, this study has led classroom teachers and other educators to modify past teachings, and to adapt and integrate play activities into the curriculum and classroom**.**

The educational theories surrounding play and learning are played out through the historical development of Curriculum Material Centers (CMC). The CMC refers to a physical location within an academic library or on the campus of a higher education institution for teacher education. The CMC collection was mandated by the educational accrediting body, the National Council for Accreditation for Teaching Education (NCATE).

The first Curriculum Materials Center, once referred to as Curriculum Laboratories, dates back to the 1920s and came about because of the necessity for social and educational reforms for all teachers. Ellis (1969) defines it as "a center or place where pre-service and in-service teachers are exposed to multi-assortments of instructional or educational materials for experimentation,

evaluation, and for the enrichment of teaching and learning" (p. 2). Over the years, Curriculum Materials Centers with names such as, "Curriculum Resource Center, Instructional Resources Center, Curriculum Library, Curriculum Collection, Education Resources, Instructional Center, Instructional Media Center" (Barbakoff, p.4) continued to increase in academic libraries across the nation. A well known one was the Curriculum Construction Laboratory, which was established on the campus of Teacher's College at Columbia University in 1928 (Edwards, 1996).

Barbakoff, a former school teacher and Education and Curriculum Material Center academic librarian noted, that "in 1967, the National Council for Accreditation of Teachers Education (NCATE) in Standard V1 of the Standards for Accreditation of Teacher Education" (p.3) ruling required for instructional materials to be available for students preparing to be teachers of the P-12 (pre-school through twelfth grade) and for it to be staffed by a librarian who specializes in education, and can instruct and maintain the collection. The *Standards, Procedures and Policies for the Accreditation of Professional Units* of NCATE outlined the criteria for the kinds of instructional materials in the CMC. NCATE Standard VI stated "…..This laboratory should include a wide array of books commonly used in elementary and secondary schools; various types of materials used in evaluating learning; and curricular patterns, courses of study, and teaching units that are available" (Ellis, p. 9, 10).

The Education and Behavioral Sciences Section (EBSS) of the *Association of College and Research Libraries* (ACRL), a division of the *American Library Association* (ALA) stated that the CMC must have educational materials that support reading, language arts, spelling, handwriting, literature, foreign languages, music, science, health, mathematics, social studies, career education, special education, bilingual education and multicultural education available for teachers in and out of the classroom. ACRL's Collection Development Policy stated that the CMC instructional materials must support the schools education curriculum and different learners as well. Instruction materials must be available in different formats, and cover a variety of subjects for P-12 grade levels, while at the same time provide for different learning styles. Among the recommended print and non-print CMC resources are flash cards, music, games, puzzles, pictures, books on tapes, big books, little books, models, videos, charts, maps, manipulatives, realia, toys, computer software and board and psycho/educational games. These materials are to be used to aid instruction; for practical classroom use; to help teachers improve instruction and teaching and to accommodate different learning styles. Also, Edwards noted that it was necessary for pre-service teachers to have a designated space for them to familiarize themselves with curriculum materials.

In collaboration with teaching faculty and as CMC Librarians, we have found that games and manipulatives, the foundation of children's play, appear to be among the most popular types of materials within each of the P-12 subject areas in the CMC. These playful resources allow for conscious or unconscious development of, motor skills, social, self-help, cognitive, problem solving, leadership, multi-skill building and are represented in content areas such as: English Language Arts, Geography, History, Science, Math, Fine Arts, Foreign Languages, Counseling, Physical Education and for students with special needs. Further students can cultivate creativity and facilitate independence through play in the individual subject areas.

It is not solely the role of the CMC librarian to select and house well chosen games and toys for teachers to incorporate into lessons. The Curriculum Materials Center Librarian must choose toys that make sense in the context and time constraints of the classroom. For example, in an average classroom there is a discrete amount of time allotted for the teaching and learning of individual subjects thus if a game takes two hours or even one hour to play it may be unreasonable for its inclusion in a lesson. Harris (2009) in his article on gaming, provided librarians with some guidelines on how to choose or adapt educational

games that fit into a twenty, thirty or forty minute period. Additionally, Harris discussed the necessity of aligning games with state and national curriculum standards. He also argues that selected games should be authentic ones and foremost be fun. Any child would be wary of an invitation to play a game that was designed solely for educational purpose.

For example Osa (2003), stated that items like puzzles, are an essential part of a child's development while with games "students have the opportunity to have direct interaction with the concept to be learned [and] become active learners"(p.9).

How does this process mirrored in the classroom, and how can the curriculum materials center foster learning through play?

Math

Math concepts may be taught through all types of play: water play, block play, card games, musical chairs, group games, hide and seek as well as board games. Further the color and tactile nature of most math manipulatives encourages play. Examples of such math manipulatives include *Pizza Fractions* and *Unifix Interlocking Base Blocks*, which work much like Legos and help teach basic arithmetic concepts.

Kamii and Kato (2006) discussed the value of games over worksheets in that repetition is necessary for mastery of operations. But games naturally are better for facilitating reiteration because children will play games for the pleasure of playing them while they will complete worksheets because their teacher has directed them to do so (p. 196). Thus the desire to learn (however unintentional) is intrinsically motivated. Secondly, Kamii and Kato stated that some advantages of playing games are that they provide immediate feedback for students and children get to manage each other as opposed to work done at the direction of a teacher which is generally returned the next day.

The results of research conducted by Ke (2008) indicated that students developed more positive attitudes toward math learning through a five-week computer math gaming camp, even if there was no significant effect of gaming on students' test performance. After all, students tend to learn subjects better that they enjoy and they tend to do well in subjects that they like. However, her study also revealed that games can fail in engaging scaffolding of which the teacher may be a better facilitator. Hence any classroom gaming is best teacher or librarian selected and led.

Basic commercial games that most students are familiar with include *Monopoly, Candyland, Chutes and Ladders, Chess* and *Mancala*. These games may be used to teach younger children basic skills such as turn-taking, shapes and patterns, color recognition and counting, while computer games such as *Math and the Cosmos* may be used to teach more sophisticated mathematical concepts to older students. On the other hand, as indicated above, games that are perceived to be for educational purposes only, tend to be less engaging for students.

Science

From a very young age children learn about their natural world through play. They dig up worms and learn that the worms live in the dirt. They inquire as to why butterflies are more prevalent among some types of flowers and not others. The very act of inquiry engages a child into the scientific world. Further, a child explores his natural world and unknowingly may find the empirical evidence. Severeide and Pizzini (1984) said that when teachers incorporate play into their science lessons children learn to solve problems more easily. Additionally learning through play also tends to increase achievement as well as test scores.

To encourage exploration of the natural world a CMC should have basic scientific instruments i.e. thermometers of all types; Celcius, Kelvin, Galileo, scales, microscopes, telescopes if possible, samples of rocks and minerals, shells, etc. Even very basic toys can teach scientific concepts. For example, block play can teach concepts of physics while water play teaches the properties of water and measurement (Johnson,

1982). An informative book on the subject of blocks, learning and development by Sharon MacDonald titled *Block Play: The Complete Guide to Learning and Playing with Blocks* outlines, explicitly how block play allows children to learn in all subject areas.

While trivia type games exist to teach rote facts about science the more engaging games are those that involve active learning. For example, playful learning can occur when students practice science experiments.

In middle and high schools, where play is less emphasized in daily lessons, there are board and electronic games that are geared specifically toward these students, to teach them more sophisticated concepts. For example, *Biolide* is a racing game that requires the use of physics and is very popular with high school physics teachers (Harris, 2009).

Social Studies

When teaching social studies, which includes world cultures, history, geography, economics, criminal justice and psychology, role play is a popular method of incorporating active learning. There are software products such as the *Decisions Decisions* series which include games about racism and prejudice, colonialism, immigration and the Cold War that involve role play as their primary teaching tool. Teaching geography can be made fun with large, plastic maps or "beach ball" representations of the globe.

Board games also have been created to teach social studies concepts in a manner which is both fun and engaging. For example, the classic, *Monopoly,* has been used in economics courses to teach the principles of a mutually beneficial market exchange and monopoly profit, basic mortgage and rental rules as well as financial management (Stanley, 2001). Also, a wide range of other board and electronic games such as *Civilization, Oregon Trail, Pandemic, The Making of the President,* and *Here I Stand* are appropriate for teaching about historical time periods (Harris, 2009).

Music

When music lessons are guided by a teacher, children learn how to express themselves more dramatically. For example, they learn to move like different animals or express different emotions that follow the music. This movement helps children to work on their gross motor skills as well as their balance and coordination (National Association of Music Educators, 2010). Children may also learn about other cultures through listening to or singing music. Fluency in foreign languages may be greatly improved through listening to music in foreign languages, even if the words are not yet understood. The National Association of Music Educators also indicates that music has been linked to improvement in memory, math achievement, reading ability and overall better academic achievement.

Physical Education

Gym or physical education class is often the most popular time of the day for many elementary school students as it is their time to expend energy in active play. Physical Education teachers help children develop both fine and gross motor development through games. They can also guide students to develop social skills by learning sportsmanship and cooperation. While it may be unreasonable for a CMC to house sports equipment typically available in the gym class the CMC librarian would do well to direct Physical Education students to curricula such as *Spark* or activity books like the *201 Games For The Elementary Physical Education Program* by Jerry D. Poppen. For Phys. Ed. teachers who need to consider the special needs child books such as *Inclusion In Physical Education: Fitness, Motor, And Social Skills For Students Of All Abilities* by Pattie Rouse**,** and *Developmental/Adapted Physical Education: Making Ability Count* by Michael Horvat prove helpful.

Special Education

As mentioned above the CMC should also have books, toys and games for students with special needs. While there are vendors who provide educational materials specifically created for those with disabilities there are also some very basic items that a CMC should have for the special

child. For example, art projects are a venue through which learning disabled students may express themselves in ways that they may not typically be able to. Larger and basic toys like blocks, balls, toys with textures or lights and sounds can help develop gross motor skills in both able and disabled students. Pretend play toys; fake food, doctor kits, play phone, allow special needs students to engage in sociodramatic play and develop social and language development (Simpson & Lynch, 2003).

Children's Literature and Play

Research indicates that selecting literature that encourages imaginative play can help develop verbal and social skills (Giffin, 1984). Pretend play associated with books also encourages comprehension, personal response and a love of reading (Welsch, 2008). Further when students change the outcome of a traditional story through play they may learn concepts such as cause and effect and the dynamics of social relationships. Often the core of the Curriculum Materials Center resides within the children's literature collection. At a minimum, it often includes the classics and annual award winners such as the Newbery, Caldecott and Coretta Scott King Awards. Among the collection are picture books to help promote learning in math, science, social studies, the fine arts etc. Books include subjects ranging from dealing with difficult issues about character such as generosity and friendship, divorce, relocation and death.

Selecting and Evaluating Play Items for the CMC Collection

As a rule CMC librarians who are responsible for maintaining the collection must consult the library's collection development policy. As mentioned previously, Osa (2003) discusses what types of items should be in the Curriculum Materials Center. Collaboration with education faculty is also necessary to get expert input as to the types of toys and games that are appropriate for each age group and content area. Similarly conferences for individual subject areas provide an opportunity to discover appropriate classroom play items. There are also annual conferences on play hosted by individual universities, museums and states. Examples include Hofstra University's Child's Play, Children's Pleasures Symposium and the Learning Through Play Conferences, which was hosted by the Cincinnati Children's Museum.

The previously discussed play items described in each content area were chosen by reviewing the literature on play and specific subjects. Elementary level trade journals such as *Social Studies and the Young Learner, Science and Children* or *Teaching Children Mathematics* as well as *School Library Journal* all have published articles on play in the classroom that have suggested games and toys. While catalogs or vendors, provide a window into the variety of play materials available for purchase, not all items are suitable for the curriculum collection. Worthwhile items are ones that allow for discovery learning i.e. child-sized scientists' tools, large walk-on maps, and math manipulatives such as linking chains. A librarian should be wary of purchasing highly technical items that require special batteries or has many pieces that could be lost when circulated. *Mindware* and other educational toy catalogs are good sources of "out-of-the-box" toys that are often simple, inspire creativity and problem solving and are award-winning.

Promoting the CMC Collection

Selecting and evaluating games and toys to be used in the classroom can be an exciting and stimulating activity. One may always create a display of toys and books arranged by content area. But other methods include exhibiting, discussing and demonstrating the use of games and toys in the classroom during library instruction classes. Going one step further, the librarian may offer a workshop for students to attend with the promise of a "Certificate of Attendance" to put in their professional development portfolios. At Hofstra University the CMC librarian offers workshops not only on "Play and Selecting Developmentally Appropriate Toys", but "Teaching with Graphic Novels", "Finding Lesson Plans", and "Teaching with Primary Sources". Other colleges may host open houses in the Curriculum Centers in order to showcase the various collections.

Conclusion

While every subject was not represented explicitly in this paper games and/or books and guides do exist for all subject areas. For example, there are bingo games to teach ESL and/or foreign language students. Where games don't exist they may be created. At Bank Street Teacher's College Curriculum Materials Center the focus is on teacher created materials, including games. The authors discovered, during a recent visit, that because of this focus there were very few publisher-created materials available in the CMC. This is a phenomenon that encourages teachers to be directly engaged in the learning process because they must be cognizant of learning theories, child development and the subject matter in order to create games for classroom use.

When educators guide students into learning through play they do so with the knowledge that when learning is self-directed and self-motivated, it takes place because games relieve the chore of drill and add an element of fun (Charlton, Williams and McLaughlin, 2005). In addition to collecting games, toys and other play items the role of the CMC librarian is to direct and instruct pre and in-service teachers as to the use of these materials in specific subject areas. Lastly, the CMC librarian can guide the education student's selection of developmentally appropriate toys and help facilitate learning and development through play.

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