

Brian Martel

*How does the learning theory you have chosen influence your curriculum development and assessment? How do you utilize technology to enhance student learning?*

The constructivist theory resonates throughout my curriculum development and assessment practices. Though my curriculum is grounded in standards, I seek to expand and explore the educational possibilities I present to my kindergarteners. Technology plays a vital role in transferring my ambitions for learning to the kindergarteners in my classes. I like to think that as a carpenter develops their craft, I motivate and provide children with opportunities to learn.

When building a home, a carpenter works off blueprints and a foundation. Ideally everything is perfect, but if you ask any carpenter, who has built for any length of time, that is not the case. Foundations can be “out of square” and blueprints do not allow for the inconsistencies of wood. Just like carpentry, teaching has its own version of blueprints and foundations. I use local, state, and national standards like the Connecticut Kindergarten Frameworks and the national Educational Technology Standards for Students (NET-S) to blueprint my curriculum. My PowerPoint on the authoring cycle of a unit on Fairy Tales demonstrates how I aligned the curriculum to the Connecticut Kindergarten Frameworks (see Appendix C). My paper comparing and contrasting the Geometry curriculum I taught and the National Council of Teachers of Mathematics standards demonstrates my ability to reflect upon and develop a plan to rectify gaps between curriculum and practice (see Appendix D).

After the blueprints have been drawn and the foundation has solidified, a carpenter starts building. Carpenters have building inspectors that routinely assess their craftsmanship. As a teacher, I have to be my kindergarteners’ building inspectors. In

today's educational atmosphere assessment is highly prioritized and has produced the "unintended side effect ... that does not take into account the practicalities of everyday teaching (that) may create a disconnect between what assessments tell us about students' performance and what teachers need to know to instruct them" (Invernizzi, Landrum, Howell, and Warley, 2005, p. 610).

Case in point, our school has begun using the DIBELS assessment kindergarten through fifth grade to evaluate children's literacy skills for Early Literacy Intervention (ELI) grouping. I can speak only for kindergarten in saying that while the DIBELS assessment can quickly and accurately aid in the formation of groups, it is entirely ineffective at specifying exactly what the children in that group specifically need. For example, when the information is presented to the teacher, we can see which children scored in the benchmark, low risk, some risk, and at risk groups on letter recognition but, not what letters they had yet to master. For the purpose of instruction, I have developed criterion based assessments like the one used to assess letter knowledge in my independent study (see Appendix E). Assessments like the one in Appendix E provide me with the data that I need to teach effectively, while the data from assessments like DIBELS provide me with the data of where to focus my resources. To revisit the building analogy with the assessment process, after the building inspector has pointed out inconsistencies in construction, the architects and carpenters work together to re-examine the blueprints and the physical structure and develop a plan of action to satisfy the building code.

Assessments are not only for teachers. A study on the effects of self assessment on kindergarten students suggests that students who self-assess are more successful than

their peers (Kariuki and Wiseman, 2006). In our half-day program there is little time for formal self-assessment. On the other hand, I provide my kindergarteners with a quick and easy self-assessment that is transferable from letter knowledge, to math knowledge, to physical education skills, to just about any task they encounter. Are self-assessment is simply to ask, “Did I try my best?” After the first few weeks of school, something magical happens. Referring back the Daily Writing Program I developed (see Appendix B), the kindergarteners come in and write three words. Without fail, one child will present their words to me with an obviously less than best effort put forth. When I ask, “Did you try your best?” the student will, without complaint, attempt the task again with full attention given to their efforts. That is not the magic though, the magic lies with the rest of the class as they assess their three words and decide if those words are their best work or not.

There is another magic that helps me teach; the magic of technology. Juniu suggests “the key challenge for instructors is to effectively and efficiently incorporate educational technology into the education process” (2006, p 78). Whether it be the whiteboards used in the DWP (see Appendix B) or the interactive flash games I programmed on my school website (see Appendix A for the URL to the website and Appendix E for the research study I conducted on two of the flash games) or the audio/video editing I have done in the annual class movies as the culmination of our Fairy Tale unit (see Appendix D), when educational technology is integrated it is a magnificent motivator.

An analysis of the relationship between teachers’ professional development with regards to technology and classroom instructional practices suggest that former promotes

more constructivist applications in the latter (Matzen and Edmunds, 2007). This is clearly demonstrated in the preceding paragraph. While I cannot take credit for inventing the use of whiteboards, computer programming, or audio/video in education, my own constructivist learning style pushes me to explore the possibilities of incorporating technology into education in new ways relevant to the needs of my classes.

But more than explore, my utilization of technology addresses the concern in a study by Rakes, Fields, and Cox (2006); “the availability of computers and training do not necessarily result in the widespread use of technology” (p. 422). I am lucky enough to be in a district (that up until recently) has been able to invest generous funding in technology. The technology committee has supported a number of endeavors to integrate technology into my curriculum in the classroom. Our class has been allotted a second computer with internet access to run flash games as well as extra space on the server to store the games for access outside of school (see Appendix A), a flat screen television (much larger than the dated television in my living room) that we connect and use as a monitor for our computer when doing PowerPoint or typing whole class activities, and a LCD projector for the grade level to show our annual class movie and run our movie theater for the school’s “mini-mall week” (see Appendix D). But technology is not limited to motivating learning; it can also be a valuable assessing tool. For instance in the research on my flash games and letter recognition that I conducted, using the game’s built in timer was one way to gauge improvement. The quicker the time to complete the task, the more mastery could be inferred (see Appendix E).

Returning for one final visit to the building analogy from a technology perspective, carpenters can attest that using nail guns will save you time framing a house,

and some will even admit that they can be more fun than swinging a hammer. My research suggests that kindergarteners can learn letters by playing the flash games on my website, and it's not too much to infer that they can be more fun than worksheets.

## References

- Connecticut State Department of Education, (2007). SDE:connecticut curriculum frameworks. Retrieved February 19, 2009, from Connecticut State Department of Education: Connecticut Curriculum Frameworks Web site:  
<http://www.sde.ct.gov/sde/cwp/view.asp?A=2618&Q=320860>
- International Society for Technology in Education, (2007). The iste national educational technology standards (net-s) and performance indicators for students. Retrieved February 19, 2009, from The International Society for Technology in Education: NETS Web site:  
[http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS\\_for\\_Students\\_2007\\_Standards.pdf](http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_Students_2007_Standards.pdf)
- Invernizzi, M., Landrum, T., Howell, J., & Warley, H. (2005). Toward the peaceful coexistence of test developers , policymakers, and teachers in an era of accountability. *The Reading Teacher*, 58(7), 610-618.
- Juniu, S. (2006). Use of technology for constructivist learning in a performance assessment class. *Measurement in Physical Education and Exercise Science*, 10(1), 67-79.
- Kariuki, P. & Wiseman, B. (2006).The effects of self assessment on kindergarten students learning of high frequency words. Honolulu, HI: 4th Annual Hawaii International Conference on Education. (ERIC Document Reproduction Service No. 495 491).
- Matzen, N. & Edmunds, J. (2007). Technology as a catalyst for change:the role of professional development. *Journal of Research on Technology in Education*, 39(4), 417-430.
- Rakes, G., Fields, V., & Cox, K. (2006). The influence of teachers' technology use on instructional practices. *Journal of Research on Technology in Education*, 38(4), 409-424.

## Appendix A

*Website:* Mr. Martizzle presents: Kindergarten in Room 1o8

<http://www.pomfret.ctschool.net/Classrooms/Martel.B/indexroom1o8.htm>

*What it is:*

This is the main page of the website I have been developing for my kindergarten class. It contains several links to our curriculum, but more importantly to this context it contains links to nearly a dozen flash games I have programmed that learners can use independently. The flash games include content for children to explore letters, numeracy, polygons, sorting, and fine motor skills.

*What it demonstrates:*

With respects to bridging Constructivist theory to practice, this artifact demonstrates my ability to create minimally guided instruction for learners to explore.

*How it benefits students at the PK-14 level:*

Though these games are designed primarily for kindergarteners, many of my colleagues, some teaching students as high as 8<sup>th</sup> grade, use these games to teach lessons and reinforce or offer skills practice to their students. The beauty of having these games on the internet is that colleagues from other schools and parents tell me that they are using the games as well.

*Standards:*

There are 11 games that address a number of standards relevant to the CT Kindergarten Frameworks, National Council for Teachers of Mathematics standards, and the ISTE National Education Technology Standards for Students (NET-S).

## Appendix B

*EDU 511 final paper:* What would Vygotsky think of my Daily Writing Program.

### *What it is:*

This artifact is a paper I prepared for EDU 511 Learning and Teaching Concepts and Models. It explains (up to the point in time I was in EDU 511 in the fall of 08) the Daily Writing Program (DWP) I have been developing since I began teaching kindergarten. It assesses the DWP primarily through the eyes of Vygotsky, with a few questions that might have been proposed by Piaget.

### *What it demonstrates:*

This artifact demonstrates my ability to create and implement curriculum that would be endorsed by one of the most prominent contributors to Constructivist theory, Vygotsky.

### *How it benefits students PK-14:*

The nature of how the DWP works limits its functionality much passed kindergarten. In a handful of instances, special education teachers at my school have used pieces of the DWP with first graders. On the other hand, some of the more advanced pre-school children I have worked with have begun the DWP in the last trimester of their school year before entering kindergarten.

### *Standards:*

Connecticut Kindergarten Frameworks:

Applying English Language Conventions

- 4.1 Students use knowledge of their language and culture to improve competency in English.
- 4.2 students speak and write using standard language structures and diction appropriate to audience and task.
- 4.3 Students use English for composing and revising written text.

## Appendix C

### *EDU 545: National Standards for Mathematics and My Kindergarten Curriculum*

#### *What it is:*

This artifact is a reflection paper I prepared for EDU 545 Curriculum Development and Evaluation comparing the geometry curriculum I taught in kindergarten with the national standards of the National Council of Teachers of Mathematics.

#### *What it demonstrates:*

This artifact demonstrates my ability to compare my curriculum with the national standards. It demonstrates my awareness of curriculum gaps and the importance of developing a unifying curriculum.

#### *How it benefits students PK-14:*

This artifact has most obviously benefited the restructuring of the kindergarten curriculum at our school. But further than that, the skills I have honed and developed in working with the national standards will benefit any students I have in the future at any level I teach with my Pre-k-3 certification.

#### *Standards:*

Referenced in artifact.

## Appendix D

### *EDU 545: Fairy Tales and Movie Stars Authoring Cycle- Kindergarten*

#### *What it is:*

This artifact is a PowerPoint presentation I created for a curriculum authoring cycle based on Fairy Tales and the Connecticut Kindergarten Frameworks.

#### *What it demonstrates:*

This artifact demonstrates my ability to create a successful curriculum that adheres to the state curriculum standards as well as motivates learning.

#### *How it benefits students PK-14:*

This artifact is directly beneficial to kindergarten classes, but with scaffolding of the lessons it could prove to be an effective unit for Pre-k through third graders.

#### *Standards:*

Referenced in artifact.

## *Appendix E*

EDU 696: The Effects of a Pair of Upper and Lower Case Flash Games on Academic Achievement among Kindergarteners and Preschoolers in Letter Recognition and Alphabetical Order.

### *What it is:*

This artifact is a paper that examines research I conducted on two flash games I developed and implemented in my classroom. In addition it contains links to the games, pre and post-test data, and parent survey data.

### *What it demonstrates:*

This artifact demonstrates my ability to develop engaging educational technology academically relevant to my students, which will help them succeed independently. This paper also demonstrates my understanding of scientific research's relationship in supporting my educational decisions.

### *How it benefits student PK-14:*

These games are designed primarily for kindergarteners and preschoolers, however some first grade teachers have used these games to reinforce and offer skills practice to their students. Having access to these games on the internet extends the umbrella of the students they will benefit to homes and schools with internet connections.

### *Standards:*

Referenced in artifact.