Curriculum Integration: An Overview

Amanda Wall
and
Alisa Leckie
Georgia Southern University

Curriculum integration is a tenet of middle level education. This We Believe, the position paper of the Association for Middle Level Education, advocates for curriculum that is exploratory, relevant, integrative, and meaningful for young adolescents. Teachers can integrate curriculum across content areas by anchoring units of study in issues and themes that are determined along with students. Researchers have studied curriculum integration in different capacities, and further research can continue to explore the impact of this approach to curriculum.

Curriculum encompasses what happens in the school and includes academics as well as arts, physical education, extracurricular activities, and support services and programs (National Middle School Association, 2010). There are many ways to implement curriculum at the middle level. One approach to curriculum emphasized by middle school models is curriculum integration (e.g., NMSA, 2010; Beane, 1993; Brown & Knowles, 2014). This overview explores understandings of curriculum integration and relevant research on this topic.

Curriculum integration relates to *This We Believe*, the guiding document of the Association for Middle Level Education (formerly the National Middle School Association), in its call for a middle school curriculum that is challenging, exploratory, integrative, and relevant (NMSA, 2010). *This We Believe* also encourages teachers and students to engage in active, purposeful learning. Many descriptions and studies have shown that curriculum integration can provide an engaging, purposeful, relevant, and meaningful approach to teaching and learning (Beane, 1993, 1997; Jacobs, 1989).

What is Curriculum Integration?

The meaning of curriculum integration varies from source to source, and schools and teachers integrate curriculum in different ways. James Beane, a prominent advocate for curriculum integration (1993, 1997, 2005), understands curriculum integration to involve meaningful learning organized around issues important to teachers and students; in this way, curriculum integration supports democracy (Beane, 2005). Beane outlined four aspects of integration that emphasize issues and align with democratic principles: integration of experiences, social integration, integration of knowledge, and integration as a curriculum design. Integration of experiences means that past and present experiences are integrated to facilitate new learning. Social integration occurs when students from diverse cultural perspectives enjoy common learning experiences. Integration of knowledge happens when content-area concepts are integrated through a focus on issues. Integration as a design emphasizes project-based learning and other applications of knowledge (Beane, 1993). Beane (1997) anchored his concept of curriculum integration in his principles for middle schools, namely that curriculum should be general, and helpful for young adolescents exploring self and social meanings.

Curriculum integration "engages students as active learners who make the most of the decisions about what they study" (Brown, 2016, p. 123). Designed to be responsive to students' concerns, curriculum integration allows for a model in which "students become teachers and teachers become learners" (Pate, 2013, p. 174). Springer (2006), a leading practitioner, further noted that "curriculum integration takes as its ultimate aim helping students live better lives now as well as in the future, not merely gathering more information for possible later use" (p. 14). Similarly, Dowden (2007), writing about curriculum integration in Australian middle schools, stated that its main purpose is to "resituate subject matter into relevant and meaningful contexts" (p.52). Topics, themes, and issues that are meaningful for students can provide a starting point for curriculum integration (Jacobs, 1989; Nesin & Lounsbury, 1999).

Researchers, administrators, teachers, and teacher educators have interpreted curriculum integration in various ways. They also have used different terminology to describe their approaches because, as researchers and practitioners have noted, there is little consensus on what terms like *curriculum integration*, *interdisciplinary curriculum*, *content integration, core curriculum*, and *multidisciplinary curric-*

ulum mean (Applebee, Adler, & Flihan, 2007; Czerniak, Weber, Sandmann, & Ahern, 1999; Springer, 2013). Some resources have delineated curriculum integration from other approaches by using metaphors like a pyramid (Manning & Bucher, 2012), or a continuum (Brown & Knowles, 2014; Jacobs, 1989; Kellough & Carjuzaa, 2009; Mathison & Freeman, 1997; cf. Greene, 2005) with subject-centered curriculum on one end and student-centered curriculum integration on the other. Along the continuum, connections among content areas may increase (Brown & Knowles, 2014; Jackson, 2005; Mathison & Freeman, 1997).

Mathison and Freeman (1997) synthesized research on interdisciplinary and integrated curriculum and articulated three categories: interdisciplinary, integrated, and integrative curriculum. They defined interdisciplinary curriculum as more content-centered, while integrative curriculum is more student-centered, aligning with Beane (1997). Springer (2013) also acknowledged the "trouble with names" and noted that interdisciplinary curriculum "maintains the distinct disciplines" (p. 192). Curriculum integration, by contrast, focuses on broad themes without strict content-area delineations. The conceptions of curriculum above derive from theoretical works and middle school handbooks; it is also important to turn to research on curriculum integration.

Examples of Curriculum Integration

Examining the research on curriculum integration presents a challenge since there is little uniform understanding of what curriculum integration is, which is compounded when terms like *interdisciplinary* or *integrated* are often used interchangeably, as noted by Nesin and Lounsbury (1999), Springer (2013), and others.

Research on curriculum integration often focuses on examples of integration between two or three content areas; it is not necessary to integrate all content areas. Two content areas typically integrated are language arts and social studies (Applebee, Adler, & Flihan, 2007; Authors, 2016), or science and math (MacMath, Roberts, Wallace, & Chi, 2010; Offer & Vasquez-Mireles, 2009). As an example, researchers in one study (Stinson, Harkness, Meyer, & Stallworth, 2009) wrote six teaching scenarios reflecting models of math-science integration described by Davidson, Miller, and Matheny (1995): discipline, content, process, methodological, and thematic. Stinson and colleagues asked 33 middle school math and science teachers to read the scenarios and indicate whether each represented curriculum integration and, if so, how; teachers also were asked to share their own examples of math-science integration. Results showed that teachers did not apply common understandings of math-science integration. That study reflects the need for teacher educators, administrators, teachers, researchers, and others to develop common approaches to curriculum.

Other research presents ways that pre-service teachers develop and apply understandings of curriculum integration. Grant and Paige (2007), for example, conducted a study within a course designed to prepare pre-service teachers for curriculum integration. Teams of pre-service teachers observed and gathered information about students to determine themes for units. They then developed essential questions to guide planning and provide a "framework for pre-service teachers to identify the learning outcomes" within the unit (p. 33). Pre-service teachers described greater curriculum understandings after the projects. Authors (2016) explored how a small number of pre-service teachers integrated literacy in units designed for middle level Social Studies; they found that this integration was achieved through discrete disciplinary literacy tasks within a unit, such as focused word study or close reading of informational texts. In another study, Barry (2013) studied pre-service and inservice teachers' implementation of "content integration" between art and other content areas within a disciplinary literacy course. Pre-service teachers generated guiding questions to relate themes to content. Barry followed up with many graduates to see how they practiced content integration in their classrooms. A middle school science teacher, "Carlita" described her unit on the human body. She collaborated and co-taught with art and physical education teachers. Administrator and parent feedback was enthusiastic; Carlita acknowledged that curriculum integration was easier because "the school philosophy was to draw connections between domains of knowledge" (p. 101). These studies show impacts of teacher education on teachers' understanding of and ability to enact curriculum integration; Carlita's example also underscores the importance of a shared vision within a school.

Other studies have investigated student outcomes and perceptions related to curriculum integration. Bishop, Allen-Malley, and Brinegar (2007) interviewed students and found that they had positive perceptions of curriculum integration as giving them a chance to "shine." Brinegar and Bishop (2011) also interviewed students about curriculum integration; students' initial skepticism shifted to engagement as they better understood the learning processes involved. Brown (2011) interviewed 26 middle school students from two programs with curriculum integration. Analyzing these interviews, Brown stressed the importance of teachers' emphasizing discrete skills within large-scale themes and topics. MacMath, Wallace, and Chi (2009) had related findings about students' skill acquisition in a curriculum integration framework. The researchers explored the assessments designed by middle school teachers in two units integrating math and science. One site had two teachers and 50 students; the other had one teacher and 26 students. Researchers found the units allowed students to self-assess through continuous hands-on experimentation. However, students at both sites struggled with content-specific skills (for example, calculating scales and ratios) embedded in the projects, and teachers could not always monitor students' progress and redirect as needed.

Other sources besides research describe various implementations of curriculum integration. Pate, Homestead, and McGinnis (1997) provided a detailed account of two teachers' experiences with curriculum integration, and Springer (2006) provided another in *Soundings.* In their edited collection subtitled *Dancing through Walls* (1993), Stevenson and Carr presented several examples of

curriculum integration with the shared goals of students growing more confident, working together cooperatively, developing social-ethical consciousness, and engaging in learning that makes them "think, think, and think" (p. 20). This type of literature has been called advocacy literature (Applebee, Adler, & Flihan, 2007) or testimonial literature (Czerniak, Weber, Sandmann, & Ahern, 1999). These are valuable resources for examples of curriculum integration.

Curriculum Integration: Additional Considerations

Standards for different disciplines, although developed by discipline-specific organizations (Czerniak, Weber, Sandmann, & Ahern, 1999), also advocate integration of content areas throughout K-12 schooling (Mathison & Freeman, 1997). Standards developed by the National Council of Teachers of English, the National Council of Teachers of Mathematics, and the National Council for the Social Studies make space for interdisciplinary and integrated approaches to content areas, and the Next Generation Science Standards align science standards for different grade bands to Common Core State Standards for English Language Arts and Mathematics (NCTE, 1996; NCTM, 2000; NCSS, 2002; NSTA, 2014).

Jacobs (1989) noted that teachers and administrators should not look at curriculum integration as an "all-or-nothing proposition" in which curriculum is either completely integrated or completely discipline-based. Rather, teachers can approach curriculum integration flexibly. Lounsbury (2009) acknowledged that it can be difficult for schools, teachers, and students to implement complex aspects of middle schools. Springer (2006) emphasized that the *Soundings* program is not intended to be a "prescription" for other schools, but a *description* of a successful realization of curriculum integration. Instead, schools should discern their own approaches to curriculum integration by studying research and successful models and then applying different ideas to their own school contexts to enact "powerful pedagogy" (Burkhardt, 2009); Jacobs (1991) offered one model to facilitate district- or school-wide planning for curriculum integration: conducting action research on current curriculum, developing a proposal for curriculum, implementing and monitoring a pilot, and then adopting the revised program.

Advocates of curriculum integration note that it can support connections among disciplines and can be more relevant and authentic than subject-centered curriculum (Beane, 1997; Jacobs, 1989; Mathison & Freeman, 1997). Again, further research is needed to understand impacts of integrated curriculum (Grant & Paige, 2007; George, 1996). Springer (2013) expressed concern over:

> the central problem inherent in any attempt to analyze curriculum integration, i.e. no unified definition of curriculum integration has taken hold. No single, set pedagogy has been established. Instead, the concept remains a loose philosophy

of student-centered education with several general philosophical consistencies but a myriad of actual, practical manifestations (p. 194).

In sum, a guiding principle of curriculum integration is a student-centered approach, grounded in democracy and enacted in ways that support students academically and affectively.

Curriculum integration can also offer a way for teachers to address other concerns, such as multiple intelligences (Gardner, 1983), constructivism (Dewey, 1938), or essential questions and enduring understandings (Wiggins & McTighe, 1998). Curriculum integration also allows space for differentiation by readiness for learning, processes for learning, and products of learning (Tomlinson, 1999). Curriculum integration can be implemented in ways that support ideas behind advisory programs (e.g., Crawford, 2012) if structured to support students' social and emotional development as well as cognitive development (Beane, 1997). Sheppard and colleagues, for example, designed several units to connect young adolescent literature to social and emotional themes (Sheppard, Ruebel, Sheppard, Stratton, & Zigo, 2004). Curriculum integration guidelines can support teachers as they frame learning in terms of important issues that students can explore in different ways and connect to themselves and their world.

Future Directions

While there are wonderful descriptions and examples of successful curriculum integration, more research is needed to continue to explore this tenet of middle level education and to understand the impact of curriculum integration. Grant and Paige (2007) noted that research examining curriculum integration is "relatively rare" (p. 30). George (1996) critically reviewed many studies and found limited research support that curriculum integration addressed real-world topics, promoted more effective learning or transfer, or allowed for more problem solving than a traditional, non-integrated curriculum. Applebee, Adler, and Flihan (2007) studied forms of curriculum integration on eleven teams of middle and secondary teachers over two years and concluded that different versions of interdisciplinary or integrated curricula were "neither a problem nor a panacea." They also noted the limited research base and called for further research.

A recent review of literature (Yoon, Malu, Schaefer, Reyes, & Brinegar, 2015) noted that the broader category of curriculum and instruction—which encompassed the topic of curriculum integration—accounted for approximately 40% of articles reviewed. At the same time, though, their review also revealed that 62% of articles presented "conceptual perspectives or project/ curriculum reports rather than methodologically or theoretically grounded findings" (p.9). A research agenda produced by the Middle Level Educational Research Special Interest Group (Mertens, Caskey, Bishop, Flowers, Strahan, Andrews, & Daniel, 2016) included curriculum integration and called for more research on the impact of types of curriculum integration on student engagement and

achievement. Within that agenda, one section on curriculum integration (Bennett, Swanson, Schaefer, & Falbe, 2016) highlights three areas—literacy, personalized learning, and problem-based and project-based learning—as models for 21st century curriculum integration.

Conclusion

Curriculum integration offers a way for teachers and students to pose questions and investigate issues that span different content areas and disciplines while working to transcend these boundaries (Beane, 1997; Jacobs, 1989; Jackson, 2005). Several middle school textbooks (e.g., Brown & Knowles, 2014; Kellough & Carjuzaa, 2009; Manning & Bucher, 2012) present benefits of curriculum integration. Both theoretical works and research studies have noted that there is no uniform understanding of what curriculum integration is; at the same time, various authors have described benefits of curriculum integration for pre-service teachers, teachers, and students. Still, further research is needed to investigate its impacts on student learning. Ideas behind curriculum integration align with *This We Believe*, especially in terms of a curriculum for young adolescents that is challenging, relevant, exploratory, and integrative.

References

Applebee, A.N., Adler, M., & Flihan, S. (2007). Interdisciplinary curricula in middle and high school classrooms: Case studies of approaches to curriculum and instruction. *American Educational Research Journal, 44*, 1002-1039.

Barry, A.L. (2013). Content integration through the eyes of novice and experienced teachers. *Teacher Education Quarterly, 40*, 93-106.

Beane, J.A. (1993). *A middle school curriculum: From rhetoric to reality (2nd ed.)*. Columbus, OH: National Middle School Association.

Beane, J. A. (1997). *Curriculum integration: Designing the core of democratic education*. New York, NY: Teachers College Press.

Beane, J. (2005). *A reason to teach: Creating classrooms of dignity and hope—The power of the democratic way*. Portsmouth, NH: Heinemann.

Bennett, S., Swanson, K., Schaefer, M.B., & Falbe, K. (2016). *Curriculum integration*. In S. B. Mertens, M. M. Caskey, P. Bishop, N. Flowers, D. Strahan, G. Andrews, & L. Daniel (Eds.), *The MLER SIG research agenda* (pp. 15-17). Retrieved from http://mlersig.net/research/mler-sig-research-agenda

Bishop, P., Allen-Malley, G., & Brinegar, K. (2007). Student perceptions of curriculum integration and community: Always give me a chance to shine. In S.B. Mertens, V.A. Anfara, Jr., & M.M. Caskey, (Eds.), *The young adolescent and the middle school* (pp. 91-120). Charlotte, NC: Information Age.

Brinegar, K., & Bishop, P.A. (2011). Student learning and engagement in the context of curriculum integration. *Middle Grades Research Journal, 6*, 207-222.

Brown, D.F. (2011). Curriculum integration: Meaningful learning based on students' questions. *Middle Grades Research Journal, 6*, 193-206.

Brown, D.F. (2016). *Curriculum integration*. In S.B. Mertens, M. Caskey, & N. Flowers (Eds.), *The Encyclopedia of Middle Grades Education* (2nd ed.) (pp. 122-125). Charlotte, NC: Information Age Publishing.

Brown, D., & Knowles, T. (2014). *What every middle school teacher should know (3rd ed.)*. Portsmouth, NH: Heinemann.

Burkhardt, R.M. (2009). *Inventing powerful pedagogy: Share. 'Steal.'' Revise. Own.* Westerville, OH: National Middle School Association.

Crawford, L. (2012). *The advisory book: Building a community of learners grades 5-9 (2nd ed.)*. Minneapolis, MN: Origins.

Czerniak, C.M., Weber, W. B., Jr., Sandmann, A., & Ahern, J. (1999). A literature review of science and mathematics integration. *School Science and Mathematics, 99*, 421-430.

Davidson, D., Miller, K., & Matheny, D. (1995). What does integration of mathematics and science really mean? *School Science and Mathematics, 95*, 226-230.

Dewey, J. (1938). *Education and experience*. New York, NY: MacMillan.

Dowden, T. (2007). Relevant, challenging, integrative and exploratory curriculum design: Perspectives from theory and practice for middle level schooling in Australia. *The Australian Educational Researcher, 34*, 51-71.

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.

George, P.S. (1996). The integrated curriculum: A reality check. *Middle School Journal, 28*, 12-19.

Grant, P., & Paige, K. (2007). Curriculum integration: A trial. *Australian Journal of Teacher Education, 32*, 29-40.

Greene, M.W. (2005). Curriculum development. In V.A. Anfara, Jr., G. Andrews, & S.B. Mertens (Eds.), *The encyclopedia of middle grades education* (pp. 162-165). Greenwich, CT: Information Age Publishing.

Jackson, A.Y. (2005). Curriculum integration. In V.A. Anfara, Jr., G. Andrews, & S.B. Mertens (Eds.), *The encyclopedia of middle grades education* (pp. 165-167). Greenwich, CT: Information Age Publishing.

Jacobs, H.H. (1991). Planning for curriculum integration. *Educational Leadership, 49*, 27-28.

Jacobs, H.H., (Ed.) (1989). *Interdisciplinary curriculum: Design and implementation*. Alexandria, VA: ASCD.

Kellough, R.D., & Carjuzaa, J. (2009). *Teaching in the middle and secondary schools (9th ed.)*. Boston, MA: Pearson.

Lounsbury, J.H. (2009). Deferred but not deterred: A middle school manifesto. *Middle School Journal, 40*, 31-36.

MacMath, S., Roberts, J., Wallace, J., & Chi, X. (2010). Curriculum integration and at-risk students: A Canadian case study examining student learning and motivation. *British Journal of Special Education, 37*, 87-94.

MacMath, S., Wallace, J., & Chi, X. (2009). Curriculum integration: Opportunities to maximize assessment *as*, *of*, and *for* learning. *McGill Journal of Education, 44*, 451-466.

Manning, M. L., & Bucher, K. T. (2012). *Teaching in the middle school (4th ed.).* Boston, MA: Pearson.

Mathison, S., & Freeman, M. (1997). *The logic of interdisciplinary studies.* Paper presented at the American Educational Research Association, Chicago, IL. Retrieved from http://www.albany.edu/cela/reports/mathisonlogic12004.pdf.

Mertens, S.B., Caskey, M.M., Bishop, P., Flowers, N., Strahan, D., Andrews, G., & Daniel, L. (Eds.) (2016). *The MLER SIG research agenda.* Retrieved from http://mlersig.net/research/mler-sig-research-agenda

National Council for the Social Studies. (2002). *National standards for social studies teachers.* Silver Spring, MD: Author. Retrieved from http://www.socialstudies.org/standards/teacherstandards.

National Council of Teachers of English. (1996). *Standards for the English language arts.* Urbana, IL: Author. Retrieved from http://www.ncte.org/standards/ncte-ira

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics.* Reston, VA: Author. Retrieved from http://www.nctm.org/Standards-and-Positions/Principles-and-Standards/

National Middle School Association. (2010). *This We Believe: Successful schools for young adolescents.* Westerville, OH: Author.

National Science Teachers Association. (2014). *Introduction (next generation science standards).* Arlington, VA: Author. Retrieved from http://ngss.nsta.org/front-matter/

Nesin, G., & Lounsbury, J. (1999). *Curriculum integration: Twenty questions—with answers.* Atlanta, GA: Georgia Middle School Association.

Offer, J., & Vasquez-Mireles, S. (2009). Mix it up: Teachers' beliefs on mixing mathematics and science. *School Science and Mathematics, 109*, 146-152.

Pate, P.E. (2013). Academically excellent curriculum, instruction, and assessment. In P.G. Andrews (Ed.), *Research to guide practice in middle grades education* (pp. 165-186). Westerville, OH: Association for Middle Level Education.

Pate, P.E., Homestead, E.R., & McGinnis, K.L. (1997). *Making integrated curriculum work: Teachers, students, and the quest for coherent curriculum.* New York, NY: Teachers College Press.

Sheppard, R.L., Ruebel, K., Sheppard, K., Stratton, B., & Zigo, D. (2004). *Using literature to connect young adolescent concerns throughout the curriculum.* Westerville, OH: National Middle School Association.

Springer, M. (2006). *Soundings: A democratic student-centered education.* Westerville, OH: National Middle School Association.

Springer, M. (2013). Charting the course of curriculum integration. In P.G. Andrews (Ed.), *Research to guide practice in middle grades education* (pp. 187-216). Westerville, OH: Association for Middle Level Education.

Stevenson, C., & Carr, J.F. (1993). *Integrated studies in the middle grades: Dancing through walls.* New York, NY: Teachers College Press.

Stinson, K., Harkness, S.S., Meyer, H., & Stallworth, J. (2009). Mathematics and science integration: Models and characterization. *School Science and Mathematics, 109*, 153-161.

Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners.* Alexandria, VA: ASCD.

Wiggins, G., & McTighe, J. (1998). *Understanding by design.* Alexandria, VA: ASCD.

Yoon, B., Malu, K.F., Schaefer, M.B., Reyes, C., & Brinegar, K. (2015). Comprehensive and critical review of middle grades research and practice, 2000-2013. *Middle Grades Research Journal, 10*(1), 1-16.