**Annotated Bibliography**

Attard, C., Berger, N. & Mackenzie, E. (2021). The positive influence of inquiry-based learning teacher professional learning and industry partnerships on student engagement with STEM. *Frontiers in Psychology 6*. doi: 10.3389/feduc.2021.693221

The three authors examine the impact on inquiry-based learning in the classroom where students are continuously struggling to be engaged with the tradition form of teaching. The research question being addressed was “What are the perceived influences of the inquiry-based learning professional learning program on student engagement?” Interviews were conducted with both primary and secondary teachers who had previously participated in professional development on inquiry-based pedagogies as well as their students who undertook inquiry-based projects on infrastructure programs in their local communities. These interviews (around 30-minutes in duration) were asked the essential question above, but were also asked in-depth inquiries pertaining to their experiences with inquiry-based learning in terms of professional development and the negative/positive impacts of the pedagogical use. It was discovered that although this study primarily focused on STEM-based learning, while answering the question above, educators and their students saw a major positive impact in using inquiry-based learning in the classroom. This was especially true when implementing the pedagogy to a hands-on activity as the one used in this research. Thus combining inquiry-based learning with project-based learning was a success for increasing student outcomes.

Bishop, J, H., Moriarty, J, Y., & Mane, F. (2000). Diplomas for learning, not seat time: The impacts of New York regents examinations. *Economics of Education Review 19*. 333-349.

An outstanding study finds that students in New York State that participate in the regents exams that are required in order to graduate are on average one grade level higher than other states in the region. These exams have been administered since 1878 and although there have been many challenges/changed to them, this article finds these summative assessments to be more beneficial. Through analyzing various graduates of New York State public schools as well as discussing the roles of educators who are teaching this exam, the results are positive. Although the study does not show a difference in dropout rate, female students who graduated with a regents diploma were more likely to receive a higher wage/hourly rate. The study also moves in to students that took basic/remedial courses earned on average 12% less the year after they graduated than students in which received the rigorous regents diploma. All the schools studied did give significant more time to struggling students and teachers were inspired to work harder when seeing the results of their time put in. Exam scores showed employers that these students were ready for the workforce, but what better way to show an employer that you’re ready for the workforce than instead of showing them a score from a standardized summative assessment, but showing them a portfolio that they created due to public-based learning/assessments in high school.

Cowgill II, D, A. (2015). Primary sources in the social studies classroom: historical inquiry with book backdrops. *Social Studies Research and Practice 10*(1). 65-83.

Cowgill II offers great insight on the use of primary and secondary sources in order to achieve high scores on summative assessments, but also distributes examples at how these documents from the past can be utilized by educators in the classroom. With the summative exams forcing students to analyze more and more documents, pictures, political cartoons, graphs etc. students should be practicing how to observe and analyze these. Therefore, Cowgill II offers that this activity can start small and evolve into something more complex. It can begin with showing learners a source and analyzing it together or creating an argument/side for that document. Following that, students could collaborate in groups and offer evidence for their arguments. Every time, the article notes that there should be an overarching question which is exactly what is seen in inquiry-based/project-based learning/assessments. After practicing, students can observe and analyze documents at an exponential rate due to the practice and implementation in the classroom. There is student collaboration with each other as well which is noted as mostly beneficial. Although the content area can at times be seen as “boring” as described in the article, what is being offered, especially in the last pages of the document can be useful for student engagement.

Evans, D, J, R., Zeun, P., & Stanier, R, A. (2013). Motivating student learning using formative assessment journey. *Journal of Anatomy* *224*(3). 296-303. doi: 10.1111/joa.12117.

Students learn better when formative assessments are administered because these are low stakes assignments, but it is good practice for students to improve. The authors of this article focus on a formative assessment journey in their research discussing the idea that these low stakes assignments should all be attached and linked in some way which will lead to students being more successful and growing in their learning process. A total of nine formative assessments were designed and introduced to a set of modules. These assessments given in the research are extremely diverse being word searches, little quizzes, hands on activities and even some self-assessment. Students were monitored with how they felt about the formative assessment journey being administered from module to module. A total of 144 students in the first year and 127 second year students responded to the questionnaire about how they felt about the journey they took each module throughout their respected year. The results discovered that a big majority of students both years discussed the ideas of formative assessments and how they helped as well as the teaching tools used throughout the semesters. These results exemplify that presenting formative assessments in a “journey” throughout a module prove to be much more effective than the basic intense period of study before a summative assessment.

Grant, S, G. (2001). When an “A” is not enough: Analyzing the New York State global history and geography exam. *Education Policy Analysis Archives 9*(39).

Grant does an exceptional job overviewing what Social Studies educators can do in the classroom to ensure that just getting an “A” on the Global Regents Exam is not enough. He examines what was the new Global 10 regent’s exam and standards that were implemented in 2000 here in New York State. As we know since then, the standards/exam has altered again. He examines how the exam that was 50 memory-based multiple-choice questions with two essays was just not cutting it and would not be benefitting future citizens of this state and country. The research makes its mark by discussing how new standards and summative assessments are always brought in to bring out substantial change, but this new exam falls short of that. The theory that tests drive change, especially in the field of Social Studies is alive and well but little research as he points out is to show for this. The article continues to analyze how the new exams are geared towards lower level thinking with almost no connections made across the board. Many would argue the same for the new exam implemented. Grant suggests new assessments like project-based learning could drive the future of Social Studies curriculum. Students making comparisons on cause and effect and how these discussions we have in the past pertain to today.

Holm, M. (2011). Project-based instruction: A review of literature of effectiveness in prekindergarten though 12th grade classrooms. *Rivier Academic Journal 7*(2). 1-13.

The article reaffirms the methodology that educators in preschool, elementary and secondary schools can use project-based assessment as a way to review learning outcomes for students. It’s noted that Holm reaches to research where this phenomenon has already been researched and has led to ideas like project-based assessment needing those driving essential questions where students identify worldly issues, and are student centered. The study took many different publications of peer reviewed articles that had overviewed project-based learning and the traditional lecture-based learning style and compared them. It is a myth that only lectures and direct instruction can open the door for students to gain mastery on content area because as the study shows, project-based learning/assessments that have those driving questions, and are mostly student oriented where they can research worldly issues are more effective with student outcomes than the traditional style of teaching. This is especially true for those courses/disciplines that have standardized exams where it is only thought that direct instruction can be used to achieve content mastery. It is concluded at the ending of the study that project-based instruction/assessments while used in pre-kindergarten to 12th grade yields improvement in content learning, higher levels of engagement and a more positive outlook to disciplines within the subject.

Jacob, B, A. (2001). Getting tough? The impact of high school graduation exams. *Educational Evaluation and Policy Analysis 23*(2). 99-121. doi: 10.3102/01623737023002099

Utilizing data from the National Educational Longitudinal Survey (NELS), Jacob analyzes the impact of high school graduation exams on student achievement and dropout rates. Graduation tests have been around for more than a century now in various states and through surveys conducted to students and educators, landmark research was discovered. It was achieved in this study that graduation tests have no significant impact on 12th grade math or reading achievement. Although these graduation summative assessments do not have a major impact on the average student dropping out of high school, it does however have an extreme impact on struggling students as well as students who have a lower socio-economic status. That said, these exams can bring extreme anxiety to the student-body of districts, especially those that rely on these exam scores for funding. Altogether, Jacob’s findings are earth shattering for state education corporations that make and administer these final exams because even 20 years ago, these assessments were found to make no general impact on the students taking them. Yet, the impact if they do not pass them can be extremely significant.

Kibble, J, D. (2017). Best practices in summative assessment. *Advances in Physiology Education 41*(1). doi: 10.1152/advan.00116.2016. 110-119.

Kibble discusses best uses of summative assessments and also writes on the idea of validity in grading these high-stakes grades. Summative assessments are those given at the end of period of instruction and this article discusses many different ways in which to go about assessing students at the end of a unit or course. The article examines formative assessments which are intended to enrich the learning process with non-judgmental grading. It is identified that formative assessments are much needed to achieve classroom goals which then build into summative assessments which as implied, are more substantial grades. Educators must have knowledge of their summative assessment to plan for instruction, learning outcomes and formative assessments (This can be used in terms of the state does not let us see the exam). Kibble examines the idea that backwards design is efficient to ensure the end assessments do align with student success. The article also discusses that educators should collaborate to ensure the validity and reliability of assessment whether it be formative or summative. As this vertical planning begins to align, students will have a solid foundation in which they can build off and achieve higher success rates. It should be noted that Kibble overviews many different subject areas, not just focusing on one discipline which ensures the concept that these ideas of summative assessment can be achieved in most if not all classrooms if used effectively.

Swartz, E, E. (2012). Distinguishing themes of cultural responsiveness: A study of document-based learning. *Journal of Social Studies Research 36*(2). 135-167.

The study takes a broader look into the distinguishing themes of cultural responsiveness in state and federally-derived document-based objectives and questions. History and government regents’ exams were studied in this article utilizing interpretive and quasi-statistical methods to determine if there is in fact an absence in cultural-responsive teaching/assessing in these exams. For the most part, after data was collected, the majority of the exams were not culturally responsive and thus not reaching all students. These exams, as the study shows, often masked marginalized cultures and groups across many years, doing no one justice. Although the use of diverse ideas, critical thinking and problem solving was present in these exams, it was difficult to see many if any documents were of culturally responsive approval. Swartz’s findings exemplify that moving forward, summative assessments should be examined for culturally responsive documents/questions and it shall be incorporated in the classroom. These document-based learning methods can still be taught in various ways and raises the eye brow to if these end of the year assessments are needed.

Zhang, L. & Ma, Y. (2023). A study of the impact of project-based learning on student learning effects: a meta-analysis study. *Frontiers in Psychology 14*. doi: 10.3389/fpsyg.2023.1202728

Authors Lu Zhang and Yan Ma use meta-analysis to examine the impact of project-based learning (PBL) on learning outcomes for students. It is discussed that PBL is a form of inquiry-based learning which is also being attempted my educators across the country, but has not been researched enough to measure the success rate. The authors use meta-analysis to combine multiple forms of research together on the same question being offered above of how does PBL impact students’ outcomes. The meta-analysis was divided into four assessment procedures to ensure its efficiency; literature collection, literature coding, effect size calculation, and moderating variable analysis. After analyzing 66 experimental or quasi-experimental research papers published between 2003 and 2023 on the effects of PBL on student learning, the results are positive! The results and discussion reveal that PBL significantly impacted the outcome of student learning in a positive manner. This, obviously can be used as a discussion to combat summative standardized testing which is the norm of states around the country. PBL not only has a positive contribution to students learning compared to the standard models, but also hits on thinking skills and affective attitudes which assists with student achievement.