Annotated Bibliography

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The authors of this study consider the positive relationship between computer-assisted feedback and instruction in a technology enhanced environment. According to previous studies, the overall effectiveness of student learning in a computer-based learning environment can result in increased learning. Unlike students in a traditional classroom, students participating in computer-assisted feedback through multi-media instruction can receive individualized, “unbiased, accurate, and nonjudgmental” feedback, which could improve teaching and learning. While this research continued to build on previous studies conducted on the benefits of computer-assisted feedback in a technology environment, it failed to produce a conclusive correlation between the computer-assisted feedback and the learning outcome of a student.


As the occurrence of technology continues to increase in education, studies have speculated that electronic classroom response systems (ECRS) improve student learning. Desiring to build on previous literature by providing a more significant measurement between ECRS and student performance, this study was designed to eliminate confounds typically found in classroom studies. Using a more controlled environment, the authors compared student
engagement by experimenting with a group using ECRS and a control group of students raising their hands. As with previous studies, this study concluded overall that an ECRS can improve student performance. However, the findings of this study were not statistically significant on the use of electronic classroom response systems and student performance. The authors outlined changes to be made in future studies as the impact of technology in education continues to be explored.


In this article the author articulates that classroom response systems, designed to provide students and teachers immediate feedback during an in-person teaching session, are proven to be effective. The choice for the type of classroom response system, however, is debated. The cost incurred for a response system which requires the purchase of clickers can provide financial barriers for students and/or institutions. The author introduces a cost-effective alternative to clickers by using a free web survey software, SurveyMonkey. The use of a free online survey in the classroom can be implemented by students accessing a link to a survey on their smart phones and/or laptops. Since the publication of this article, other web-based computer response system sites have been developed and are mentioned in this bibliography from which a teacher can choose.


The author of this article shares his personal classroom experience of incorporating technology to increase student engagement during an in-class lab. While teaching, the
author frequently experienced students who did poorly on homework, did not seek clarification during class, or used computers and smart phones to surf the web. While classroom response systems, or clickers, have increased student engagement in the classroom, the author concluded that clickers limit active engagement by only using multiple choice questions. A web-based tool, Google Forms, was used as a free website which was able to be accessed at school or home. It provides multiple formats for questions: text, paragraph, multiple-choice, lists, scales, and grids. A downside of the program includes feature limitations, which will likely be addressed by Google. Interestingly, the author cautions others using the Google Forms short- or long-answer responses, as classroom results can be displayed which are unrelated or inappropriate!


As a self-proclaimed “Luddite”, the author of this article expresses her unashamed disapproval of students’ “unhealthy dependence on technology” and the resultant shorthand and casual text messages in written work. Rather than reducing the classroom to mimic the online environment, the author challenges the educational community to continue age-old methods which teach “sustained argument, evidence to support argumentation, or acknowledgement of other sources consulted.” Although the author expresses a legitimate perspective, the delivery of her argument is presented with such uncommon vernacular that it is challenging to grasp the article’s complete meaning. Additionally, other than applauding the internet’s ability to access information, the author does not provide any
additional ways of effectively incorporating technology in education, particularly in providing instruction on teaching writing.


In this article, the author does a superior job of providing historical and background information related to the development of technology in education. The case study performed to determine potential benefits of web-based polling in the classroom demonstrates that our classrooms are filled with “Millennials”, the networked generation. While the previous article written by Hellman states that current technology “permits a false sense of authority, credibility, and knowledge,” this article recognizes students as collaborators who like to have a voice in the classroom. The author compares the use of clickers to online polling options in the classroom. Clickers were the early favorite for audience response systems, but due to price and unreliability, their limitations are being overtaken by free and ubiquitous on-line polling options. Poll Everywhere is the web-based audience response polling system used and valued by the author.


The author of this article introduces a biology field study of brilliantly using smart phones to integrate QR codes, or two dimensional quick response codes, and social networking sites (SNS), like Facebook and Twitter. Carrying heavy field workbooks, searching through impertinent information and being separated from discussion with
classmates in the field prohibited many teachers and students from a real world experience outside of the classroom. By incorporating technology into the field study, the teacher can create and individualize a series of QR codes featuring the exact information to read and record in the field. Students can then discuss exploration results quickly and easily right from the field through a SNS rather than waiting to discuss their findings back in the classroom. This article includes a practical step-by-step guide for teachers on creating and implementing QR codes in coursework.


Implementing clickers in the classroom has demonstrated several benefits in the classroom. In this article, the author determined a positive correlation between clicker participation in the classroom to demonstrate problem-solving and critical-thinking skills with positive performance on exams which contained similar problem-solving and critical-thinking questions. However, there was no positive correlation between exam grades and correctly answered clicker questions. Not only is this article overloaded with research details making it difficult to read, there seems to be design flaws by having students graded based on clicker participation. More research will likely follow this study to determine the ability of clickers to develop problem-solving skills.


With a unique twist on the argument of technology in education, the author of this article presents a refreshing angle: mobile learning instead of mobile teaching. Affirming recent research, the author states successful learning includes active, engaging
experiences which simulate the real world. Research also supports increased learning when students engage the content using multiple senses. So, why is education limiting students’ technological “learning” to text-heavy, static copies of digital textbooks? With multimedia materials available through smart phones, students have access to “soundtracks, animations, and videos” to go beyond content delivery to transformative technology. While education is making huge strides to integrate technology into education, there are growth opportunities as we “capture raw material from the real world and engage with it based on the concepts we are teaching them.”