Northwestern College, Iowa
NWCommons

Master's Theses & Capstone Projects   Education

Fall 2017

Exploring the Importance of Using Formative Assessment in Informing Instruction to Improve Student Learning

Sarah Wilson

Northwestern College - Orange City

Follow this and additional works at: https://nwcommons.nwciowa.edu/education_masters

Part of the Educational Assessment, Evaluation, and Research Commons, and the Educational Leadership Commons

Exploring the Importance of Using Formative Assessment

in Informing Instruction to Improve Student Learning

Sarah Wilson

Northwestern College

Abstract

This literature review explores the importance of incorporating formative assessments and use of data to drive instructional decisions and address problems in the learning process for students. The review begins by exploring the definition of formative assessment, and how it can be used in the classroom. It provides examples of formative assessments that can be used in the classroom setting and what those formative assessment could tell a teacher about the next steps in the learning process. Next, this literature review discusses the importance of evaluating and using data gathered from formative assessments in order to make informed instructional decisions to increase student learning and performance. Using formative assessment and assessment data to drive instruction provides a multitude of benefits that can be an extremely cost effective for schools to improve students learning and performance. Assessment is an ever-increasing part of education, and developing teacher skills in this area has the potential to reap a multitude of benefits for students and educators. Not only does assessment help a teacher to make evidence based instructional decisions, it also has the potential to identify students who are struggling and provide early interventions to address issues before they become major learning issues.

Exploring the Importance of Formative Assessment

in Informing Instruction to Improve Student Learning

Assessment and the use of data has become an ever-increasing part of today's teacher vocabulary and classroom practices. Assessment is a topic with a wide variety of definitions within the field of education, and evaluating the effectiveness of the many types of assessment is often a difficult task. There are many different forms of assessment, each with their own specific purpose, and determining what kind of assessment is most effective is highly dependent on the purpose of the data a teacher is trying to collect. There are wide ranges of opinions that exist about high stakes assessment such as Iowa Assessments, ACT, SAT, and other standardized measures of achievement, but each of these forms of testing is often used to make important decisions in the life of a student and the status of a school as a whole. Since these assessments are so often used in making major decisions, there is a great deal of discussion regarding strategies that could be used to improve student performance in order to positively impact these high stakes scores. Along with that, the field of education is constantly changing a growing, and working to improve student learning is a constant goal. Trends in formative assessment and using data to positively impact student learning have become an integral part of teacher practices in the classroom today.

Using data has been a rising trend in education, especially since the implementation of the No Child Left Behind Act of 2001. After this law was enacted, high stakes assessment data was widely used to monitor the effectiveness of schools and as a tool to attempt to improve struggling schools by identifying areas of weakness and formulating interventions in an attempt to overcome these weaknesses (No Child Left Behind, 2001). In 2015, the Every Student Succeeds Act was signed into law by former President, Barak Obama in an effort to continue and

improve on the goals set forth by No Child Left Behind. This law also focused on continuing the efforts of improving schools, and it included measures to improve the use of assessment and data for making decisions about students and schools (Every Student Succeeds Act, 2015). As the use of data has evolved, it has become evident that using it to make decisions can be very useful to increasing student achievement. Even though teachers recognize the importance of using data, there is often a great deal of frustration around the topic of depending solely on data from high stakes testing as the only indicator of student and school success. There are a myriad of limitations that arise when looking at or using high stakes assessment scores, and this can be a major source of discontent and distrust of that system because far too much significance is placed on these onetime scores (Erkens, Ferriter, Goodwin, Heflebower, Hierck, Jakicic, Kramer, Overlie, Rose, Vagle, Young, 2009). The question that educators are then faced with is, what kind of data is most helpful, and what can teachers do to get and use data that will aid in making informed decisions to increase student learning and close the achievement gap? While high stakes testing data can be useful, one of its most significant limitations is how distant it often is from current student achievement as it is often reported weeks or months after the test is administered, and it is often far too vague which does not allow the teacher to target specific aspects of the learning process in order to further student understanding. Formative assessment conducted in a classroom gives teachers real-time results of student understanding which allows teachers to make immediate decisions regarding the next steps in the learning process (Curry, Mwavita, Holter, & Harris, 2016).

What is formative assessment and why is it important?

        "Formative assessment is a systematic process to continuously gather evidence about learning" (Heritage, 2007, p. 2).   Formative assessment is an assessment method that teachers

use to gather real-time information regarding the student's current level of understanding or their zone of proximal development. By meeting students at their zone of proximal development, teachers can better meet student needs by identifying specific issues in the learning process and then helping students to fill in gaps or misconceptions in understanding before continuing to build on material. This process allows students who are struggling with earlier steps in learning to receive appropriate interventions before they are too far behind to catch up with their peers. If students feel that they are being inappropriately challenged, they will often give up and feel as if there is no purpose in trying to understand the material that they are struggling with. In contrast, if students are not challenged enough, they will become bored and it is unlikely that teachers will be able to further student thinking to foster student growth (Heritage, 2007). Formative assessment differs from summative assessment in that summative assessment aims to assess knowledge for all of the learning process at the end of learning in order to check for total understanding of standards. While summative assessment has its place in education, teachers place far too much value in the summative results that could be significantly improved through the use of formative assessments (Erkens et al., 2009).

According to a study completed by Furtak et al., (2016), formative assessment can be broken down into four major parts: "designing formative assessment tasks, asking questions to elicit student thinking, interpreting student ideas, and providing feedback that moves student thinking forward" (p. 267). In this study, nine teachers participated in a three-year training program to develop and improve formative assessment skills. This program, Formative Assessment Design Cycle (FADC), provided a platform for uniform training in order to more accurately determine the effectiveness of teacher training in the implementation of formative assessment practices. The teachers were evaluated on a number of factors/skills including:

ability of teacher to interpret student ideas, test scores, recorded classes to be evaluated for

formative assessment practices, and quality of the tasks that were designed by each member of

the training program. In the process of designing formative assessment, the purpose of these

tasks is to gauge the student's current level of understanding. This could be derived from

essential questions or concepts, learning objectives or targets, and skills goals for the unit or

topic of learning. These tasks should give the teacher data about the student's current level of

understanding. Most importantly, these tasks should give students an opportunity to demonstrate

and share their ideas in order to receive feedback that can further develop their thinking. This

opportunity to share ideas, allows students to have a chance to articulate themselves in a way that

can help them develop a deeper understanding and consider other ideas (Furtak et al., 2016).

In using formative assessment tasks, asking questions that will foster an increase in

student's idea development is the next imperative step of the formative assessment process.

Society and technology are constantly changing which means that the expectations for students

entering the work force are changing as well. In this information rich time, rote memorization is

no longer valued or a primary goal of learning. As the world grows and changes at an extremely

rapid pace, today's learners need to be able to think about what they are learning in order to

apply it to new situations so that they can be functional and productive members of modern

society. This means that the development of critical thinking skills is crucial to the modern

student's education (Ripley, 2013) Formative assessment gives the student opportunities to

explore their own learning and develop their own ideas free of the fear and anxiety that may exist

in higher stakes summative assessments.

Collecting and Using Data

The concept of collecting and using data is essential to being able to successfully use formative assessment in the classroom. However, data collection is not as intuitive as is often assumed by the educational community. Increasingly, teachers are finding that without a common framework or language to build formative assessment practices around, data uses and collection is limited, disorganized, and unfocused. In the study by Curry et al. (2016), educators were introduced to a common language and framework for formative assessment. Teachers were taught how to collect data and what kind of data to collect. This study was completed in a rather large district of 529 teachers serving a student population of approximately 10,000. The goal of this study was to better understand how purposeful methods of data collection were able to influence the effectiveness of formative assessment practices. Data for this study was collected through a variety of observations, notes, and recordings and analyzed over several formative assessment skill categories. The results of this study indicated that teachers were able to more effectively collect data in order to inform their instruction, and they found the use of data to be less threatening and more informative than previous practices. The overarching goal of the study was to create a mentality that data is meant to inform rather than evaluate the teacher and their practices.

Another important component of collecting and using data is determining what kind of data to collect. Commonly, data is viewed as summative data such as quizzes and tests. This data comes at the end of learning and speaks to the students' progress as a whole. This data is meant to place a numerical value on the how well a student learned. Alternatively, formative assessment data should be collected often during the learning process. This requires educators to break their standards down into specific learning targets which then allows the teacher to measure progress towards the intended goal and make adjustments in the process of learning.

This means that it is essential to collect data as the learning is happening using specific steps in the learning process as the tool for assessment (Erkens et al., 2009).

Using Assessment for Struggling Learners

Among the instructional expectations placed on teachers in schools today, differentiating instruction is a primary topic of conversation and training. Differentiating instruction is defined as, "changing the pace, level, or kind of instruction you provide in response to individual learners' needs, styles, or interests" (Heacox, 2012, p. 5). Every student learns at a different pace, and it is essential to student success that teachers are able to determine student's current level of academic performance and make adjustments to instruction based on that information. Formative assessment is an extremely valuable tool that can be used to determine if there are gaps in student understanding which then allows the teacher to determine what students still need to learn (Heacox, 2012). Differentiating instructions requires teachers to evaluate the different styles of learning present in the classroom and make decisions for instructional activities based on those observations. While there will always be an achievement gap in the classroom, differentiation is one way that this gap can be minimized. Formative assessment is yet another powerful tool that can be used to work towards minimizing the gap in student achievements that exist in a single classroom (Furtak et al., 2016). In the study by Curry et al., (2016), teachers observed that students were better able to self-reflect on their performance and make adjustments to their learning though the continued use of formative assessment. Struggling learners often find it difficult to take ownership of their learning. The use of a common framework for assessment was instrumental in helping students form their own goals for furthering their learning. Teacher observations that resulted from this study reported that students were significantly more self-aware of their progress and their needs. In this study,

students were being taught under the Self-Determination Theory (SDT) which encourages

teachers to set goals and take measures to achieve those goals, which facilitates fostering this

skill in students as well. Helping students to self-advocate is an essential skill for any student,

but especially for struggling learners.

Clark (2008) explores the evidence of success when using the Assessment for Learning

(AfL) model in classrooms. This model provides a common framework for the teachers to follow

in order to provide continuity in the way students are treated in terms of assessment. According

to Clark (2008), AfL consists of five basic principles including that students can:

Be able to understand clearly what they are trying to learn and what is expected of them;

be given feedback about the quality of their work and what they can do to make it better,

be given advice about how to go about making improvements, be fully involved in

deciding what needs to be done next, and be aware of who can give them help if they

need it (p. 6).

This article examines schools and teachers who have used this model and identifies many

successful outcomes of these practices for both teachers and students. Teacher report that

students are more interested in their learning, seem to enjoy helping each other and working

collaboratively, and are more prepared to help themselves get the interventions that they need to

be successful. This is an extremely important skill for struggling learners. Clark (2008) goes on

to explain that there is a high correlation between motivation and the potential for student

success, and formative assessment is a tool that can prevent motivation from dwindling to

unrecoverable levels. Assessing student knowledge allows teachers to meet students at their

current level and engages them as a participant in the learning process. Formative assessment is

unique because it facilitates everyone being part of the process of learning rather than simply

having the teacher be in control of the process of learning. This kind of shift creates classrooms

in which students are taking a much more active part in their learning which leads to a higher

probability of success. Overall, the AfL model allows teachers to connect with and reach more

students and in turn experience better performance outcomes (Clark, 2008).

Impacts of Teacher Assessment Training

While there is an overwhelming amount of evidence that assessment will positively

influence student learning, many teachers feel unconfident in both their understanding and skills

regarding the use and role of assessment in improving student learning (Erkens et al.,

2009). Teacher training is imperative to developing these critical skills.   Perhaps one of the

most important parts of developing teacher ideas surrounding formative assessment is clearly

defining the purpose of the assessment. While a great deal of assessment found in education is

evaluative in nature, in that it determines quality of the education and therefore the teacher; the

purpose of formative assessment is strictly to inform instruction. It is vital that teachers

understand how to collect and use data in order to inform their future instruction rather than

using information to dwell on student's shortcomings in the learning process (Heritage,

2007). When teachers are able to use data to inform their teaching, they are able to make a much

more significant impact on student learning. In the study by Furtak et al., (2016), it was

indicated that teachers who participated in a formative assessment-training program had a much

greater increase in student achievement from the beginning to end of learning than teachers who

did not participate in the training. The study also showed a correlation between the quality of

feedback given to students and their scores on subsequent summative assessments. Feedback is

an imperative part of the learning process as it give student's a next step for furthering their

learning. This indicates that teacher training is an invaluable resource for increasing student achievement.

Teacher understanding of formative assessment is important to using assessment successfully in the classroom. In addition to knowledge about formative assessment as a whole, it is imperative that teachers have a clear understanding of how to look at and use the data the they are collecting in order for it to be useful (Heritage, 2007). Lastly, teachers need to be able to supply students with quality feedback in order to make the formative assessment interactions useful and productive for furthering student learning. The previously mentioned study by Furtak et al., (2016) highlights that, "There is a significant association between feedback quality and the post-test scores" (p. 262). This would indicate that feedback alone cannot be a predictor of success, and that the quality of the feedback is key to furthering the student's learning. The skill of giving quality feedback is a skill that would need to be taught and practiced by the teacher before it is put into real action.

Conclusion

Teaching is a career that requires constant reflection on practices and consistent development of ideas and practices. The goal of improving student progress and fostering motivation and a strong desire to learn in students is essential for successful classrooms and schools. Formative assessment is a powerful tool that can change the course of a student's learning by helping them to understand the learning process and learn to reflect on their own progress. This world is changing at an extraordinary pace, and preparing students for being lifelong learners so paramount to their success. Training and knowledge of best formative assessment practices is essential to the effective use in the classroom, and training of future

teachers should place a significant emphasis on this component of assessment. Teachers are not

only teaching students today, they are preparing them for the future of tomorrow.

Annotated Bibliography

No Child Left Behind Act (2001). Retrieved from

https://www2.ed.gov/nclb/landing.jhtml?src=ln.

> This website provides an overview of the No Child Left behind legislation from a United
>
> State government. This site is useful for providing basic facts and information about the
>
> legislation and its evolution over time. It discusses the basis for the legislation as well as
>
> its development and implementation.

Every Student Succeeds Act (2015). Retrieved from https://www.ed.gov/esea.

> This website provides an overview of the legislation that developed following No Child
>
> Left Behind. It provides information about the structure of current legislation and
>
> explains the expectations placed on schools in terms of their responsibility regarding
>
> student success.

Clark, M.A., (2008). Assessment is for learning: Formative assessment and positive learning

> interactions. *Florida Journal of Educational Administration Policy*, *(2)*1, 1-16.
>
> This article explores the Assessment for Learning (AfL) framework for assessment
>
> practices. It highlights the successes and outcomes of the use of this model in Florida
>
> classrooms. The AfL model has been shown to increase student engagement and
>
> motivation which indicates it could be very successful in helping both typical and
>
> struggling learners. It also discusses the effectiveness of a common framework for
>
> teachers in making assessment decisions.

Curry, K. A., Mwavita, M., Holter, A., & Harris, E. (2016). Getting assessment right at the

> classroom level: Using formative assessment for decision making. *Educational*

Assessment, Evaluation and Accountability, 28(1), 89-104.

doi:http://dx.doi.org.ezproxy.nwciowa.edu/10.1007/s11092-015-9226-5

This article looks at the effectiveness of using a teacher-centered approach to training in the use of data to drive instructional practices. It looks at the benefits of using a district-wide methodology in order to form a common language and practice for a student's whole education. It also explains who this method fosters good practices in teachers by making them more confident in their assessment abilities which makes them more competent in their assessment practices.

Gardner, John. (2013). *Assessment and learning*. Thousand Oaks, CA: SAGE Publishing.

This book, written in collaboration with many authors, explores the many facets of assessment practices in the classroom. It includes reviews of several research projects and their results as well as discussing important components of using assessment to drive instruction in the classroom. It addresses common misconceptions about assessment and has a heavy focus on good assessment practices and effective teacher assessment training.

Erkens, C., Ferriter, W., Goodwin, M., Heflebower, T., Hierck, T., Jakicic, C., Kramer, S., Overlie, J., Rose, A., Vagle, N., Young, A. (2009) *The teacher as assessment leader*. Bloomington, IN: Solution Tree Press.

This book explores the importance and effectiveness of using formative assessment as a vehicle for positive change in the classroom. It supplies teachers with information regarding the different components of formative assessment. It also explains how to collect and use data in the classroom to shift from a summative focus to a formative focus. This book was written collaboratively by a number of assessment professionals, and is intended to not only explain the importance of formative assessment, but to give

practical classroom applications strategies for implementation of formative assessment

strategies.

Furtak, E. M., Kiemer, K., Circi, R. K., Swanson, R., de León, V., Morrison, D., & Heredia, S.

C. (2016). Teachers' formative assessment abilities and their relationship to student

learning: Findings from a four-year intervention study. *Instructional Science, 44*(3), 267-

291. doi:http://dx.doi.org.ezproxy.nwciowa.edu/10.1007/s11251-016-9371-3

This research project explores the effectiveness of teacher training in improving

assessment practices. The focus of this project was to determine if using a common

program for training teachers to assess students was beneficial to student performance.

This study found that teacher training did have an impact on student learning, and that

teachers who were trained were more equipped to effectively assess student learning.

Heacox, D. (2012). *Differentiating instruction in the regular classroom: How to reach and teach

all learners*. Minneapolis, MN: Free Spirit Publishing.

This book is written for educators as a tool for improving differentiation in the classroom.

It describes the educator's responsibility to meet the needs to students, and identifies how

to work towards meeting those needs. This book gives practical tools for educators to

better meet the wide range of needs by clearly identifying student needs. It also discusses

the importance of developing positive motivation in students by supporting their self-

esteem.

Heritage, M. (2007). Formative assessment: What do teachers need to know and do? *Phi Delta

Kappan, 89*(2), 140-145. Retrieved from

https://ezproxy.nwciowa.edu/login?url=https://search-proquest-

com.ezproxy.nwciowa.edu/docview/218473831?accountid=28306

This article explains the components of formative assessment and compares and contrasts the benefits of standardized/summative assessment to using formative assessment. It explains problems with depending solely on standardized/summative tests, and demonstrates benefits of using formative assessment as a means to inform and drive instruction and student learning. The articles explores the problem of a lack of teacher training regarding formative assessment practices and highlights the importance of using formative assessment practices in the classroom and training teachers to successful use this practice.

Ripley, A. (2013) *The smartest kids in the world and how they got that way*. New York City, NY: Simon and Schuster Paperbacks.

This book reports the findings of research done in different education systems in the world with a focus on what makes students in those settings successful or not successful. It follows four exchange students in four different countries (South Korea, Poland, Finland, and the United States), and examines differences in the education of students in each country compared to their level of success on an international standardized test that measures the preparedness of students to succeed in the world. The study examines the effectiveness of attitudes of students, teacher, and parents related to different strengths and weaknesses of educations systems. This study focuses on what can be done to achieve better education in the United States by taking the best parts of other successful education systems.