Formatted: Different first page header

How Do Students Use Self-Regulation in the Learning of

Science in an Alternative School Setting?

Comment [VKD1]: The running head is a shortened title so that readers of a journal can tell what article they're thumbing through.

Wendy R. Duggan

Georgia College & State University

EDCI 7743

Introduction

Imagine you are walking back into a science classroom for another chance at passing it. You walk in and realize that it is not a regular science classroom. This room if full of computers. You start to woander. - Hhow am I going to take science on computers, and if I couldn't pass it in a regular classroom, how am I going to pass it on computers?- All of sudden, doubt fills your mind again about passing science again this time. You know that you have had trouble understanding science in a regular classroom due to either the classroom was too big or the class was too fast pace for you.

I have several students that come into my classroom wondering those exact questions. I teach all Sciences in my classroom, and all are on computers. We use Odysseyware, which is a computer program that has all academics plus electives. Most of the students that come into the Odysseyware classrooms have taken the academic class in a regular classroom and for some reason did not pass the course. Some come into the class due to demonstrating difficulty functioning in a regular classroom:, they need to be in a smaller classroom setting. Most of my students are of the minority factornon-dominated group with some having IEPs or 504 recommendation. I like the way D'Angelo (2009, pg. 212) states it, these students are not experiencing success in the classroom because they were square pegs being forced into a round hole of education that did not work for them. But the common factor for all my students is they just do not know how to use self-regulation, strategies that help the student take ownership of their own learning, to help them succeed in a science classroom.

In my classroom, I am able to work with each student on an individual basies. The students are able to work at their own pace without any other student knowing what lessons they are on. The students have a prescribed strict way to go through each lesson. They also have a

specific way to take notes for the class. They have to put the title of the lesson, then the objectives (essential questions), vocabulary and then notes from the lessons. At the end of each lesson they have about ten questions that they have to answer. They get a grade for each lesson. Which is great so they can see how they are understanding the material. One of the best parts of the class is when they do not understand something in the material, I can go over and help them with the material. They get their own personal lesson. ~~Which~~ This is a great bonus for the students, ~~due to being~~ since in a regular classroom, a teacher just cannot stop teaching the class to make sure a student comprehends the information. The student would have to come back after school and talk with the teacher on an individual basis.

Self-regulation ~~on top of being in a~~ within a smaller, more personal environment can benefit students tremendously~~. - e~~Especiallyespecially in the academic discipline of science, where students have trouble with some of the investigation concepts and how to put them to work (Peters, 2012). Self-regulation done properly can help a C student go to an A student. Self-regulation is a process of an individual taking ownership of their own learning and behavior. The student has to understand what it takes to self-regulate, what strategy works for them (Zimmerman, 2008)~~.~~ They have to change their way of thinking when it comes to science. The student has to plan, monitor and evaluate their own way of learning. I feel that one of the most important parts of self-regulating for the students is the motivation to learn. Most of the students I deal with come from families that either one or none of the parents have an education or the parents are not even involved with their education period. They really do not have anyone to keep them motivated with their school work, So for my students a way of staying motivated will be the key for the self-regulation process for them.

> **Comment [VKD4]:** Right here you need to define what self-regulation is.

> **Comment [VKD5]:** Do you want to say something like, rather than depending on others for direction.

> **Comment [VKD6]:** What is the connection with motivation? You have to be explicit.

While we will see how the students are doing at different times during the course, the final goal will be their final score for the science class. Each student will have a pre-test for the individual science class and of course the post test will be their final. The great thing about Odysseyware, they will have a pre- and posttest for each unit. On top of that they will have benchmark tests that all science students will have to take around the six and twelve week marks. This will help the student and me to see how the strategy that they are using for self-regulation is working that individual student. During the first week of school we will be going over self-regulation and will find a way for students in an alternate setting to strive with the learning of science. Plus, other students will see that an alternative setting is not always a bad thing, and that it could be a great place to learn. The students will see this type of alternate setting as a positive thing.

> **Comment [VKD7]:** This should go in your methodology section.

The driving force for this research lieseys within these questions: Does self-regulation strategies really help students perform better in a computer-based classroom? What type of self-regulation works best with a web-based course? What benefits does self-regulation have with helping students in a science classroom? What type of classroom works best for alternative students? Both quantitative and Mostly qualitative data on students' self-regulation process will be collectedused along with some quantitative data with using the student's scores. I am hoping to show adaptive changes in the students' science test performance and the frequency with them using self-regulation strategies.

Literature Review

There has been numerous research done on self-regulation~~. T~~hough not many have been done on a web-based class and science. With this research we are going to see how self-regulation can help students in a web-based science classroom. Self-regulation refers to the degree to which students are metacognitively, motivationally, and behaviorally active participants their own learning (Peters 2012). Self-regulating is an iterative cycle of forethought, performance and self-reflection. The forethought part of the cycle is goal setting. Goal setting is when a person sets themselves s~~you set s~~pecific tasks and strategies to learn to help them ~~you~~ master the self-regulation. Goals established by the teacher, ~~that are set to~~ help students conduct investigations in a scientific way are advantageous for the following reasons: (1) they provide tangible, specific standards from which to conduct student work, (2) they can be placed strategically to proximally emphasize a particular aspect of the nature of science, and (3) they make students aware of the quality of their work and give particular ways to improve (Zimmerman 2008). Giving students' goals helps them as they go throughout the self-regulation process. For students in an alternative setting having goals is a very useful tool (Zimmerman 2008). They can check off things once they have reached that goal and mark it off.

The second part of the cycle performance is attention focusing. Attention focusing is referring to the methods used to screen out processes that have a negative effect on learning and to concentrate on the methods that aid learning (Peters 2012). During performance part of the cycle the students are also monitoring and assessing whether its execution in adequate for themselves. ~~Plus with~~within the process of monitoring monitoring learners~~they~~ have to monitor how their environment and other outside sources a~~e~~ffects their learning (Panadero 2012). During this part of the cycle, a student can use a rubric or a self-assessment script to help them monitor their studies. Just as rubrics are used to help a student understand what the teacher expects for a

Comment [VKD8]: A repeat

Comment [VKD9]: Don't want to use "you"

Comment [VKD10]:

Comment [VKD11]: How do you know? Cite.

project, . Students can use rubrics to use to help them see what expectations are needed for them to succeed in science. Rubrics have three characteristics; a list of criteria for assessing the important goals of the task, a scale for grading the different levels of achievement and a description for each qualitative level (Panadero 2012). The degree of the self-assessment may depend on the goals the student is pursuing, that in turn can be affected by teacher's instruction, and second, on its perceived effectiveness, a perception that can be improved by the kind of frequency of teacher's feedback.

Comment [VKD12]: This is interesting

The last and final part of the cycle is self-reflection which is evaluation of monitoring process. The monitoring enables the student to gauge their success in their performance so they can decide to continue with their current performance for the task or change strategies. This reflective practice, using a self-oriented feedback loop during learning, helps students be more efficient in their learning (Peters 2012). By self-reflection stage of the cycle, the student is using cognitive strategies to judge their performance with the rubric or the self-assessment tool they used. These judgments hinge greatly on assessment of what caused the results, such as whether poor performance is due to limited ability or insufficient effort. Such judgments, in turns, influence future forethought and performance (Whipp 2004). After evaluation the student will see if he or she wasthey were able to optimize or sustain high levels of performance or if they need to change the assessment standards (Cleary 2008). If the they had successsuccessful, they can continue strategies they had in place they can continue to use them as they advance in the science academic, or if they had poor success they can go back and reassess their goals and change the strategies they used, thus making this a cycle effect.

One great thing about the alternative setting, is that it is a smaller class size for the students. Instead of being in a classroom of twenty-eight to thirty students, they have only about

twenty at the maximum ~~max~~. ~~I can tell you from m~~My experience in the alternative setting ~~is,~~ that~~,~~ for most students,~~ ~~when they ~~students ~~get that individualized attention, they flourish. They can understand the concepts better, due to being able to take the time with them. The students in the alternative setting are individuals who~~that~~ require academic and behavioral instruction and supports to improve their own life circumstances. ~~Effective practice for ~~The alternative setting model is ~~s are~~ (1) applicable to students who are at-risk, (2) practical for implementation in a school setting, and (3) capable of~~for~~ producing, convincing positive student outcomes (Flowers 2011). The smaller class setting is great for these practices. It provides~~ a~~ more personal, individualized feedback ~~to~~ for each student. ~~Which is presumed that T~~this increase in individualized time can~~will~~ correspond to higher levels of school engagement, bonding, and commitment than what might be achieved in a more traditional classroom setting (Flowers 2001). ~~With s~~Students have more autonomy in~~elp~~ guiding their own lessons, going at their own pace, and ~~it is~~ perceived~~d~~ that the classroom is mainly controlled by the students. This gives the students a sense of ownership of their education. Though truly it is a combination of teacher and student control classroom. A higher level of achievement will be associated with high shared control (of teacher as well as student) (Eshel 2003). ~~With this being said, s~~Student adoption of self-regulation learning strategies will be contingent on the effect of student shared and teacher shared control of the classroom.

~~Dealing with~~In a web-based course, self-regulation is key. Though the students have a teacher in the room with them, their course with their lessons is all online. ~~I as t~~The teacher is there for instruction ~~and to help the students ~~on a one to one bases. ~~This is where the s~~Students get the individualized attention~~sm~~ they need. According to Whipp (2004), t~~T~~ime management skills are strongly correlated with final grades and that effective use of study aids is~~was~~ a strong

predictor of students' overall performance. However Whipp found along with that studies have offered little detail on how, if at all, other self-regulation strategies in the on-line environment differ from those used in a regular classroom environment (Whipp 2004). One strategy that is important is their note taking skills. They need to take better notes in a web-based class than in a regular class, due to not having a textbook.

Students taking science classes are expected to understand scientific facts, as well as possessing the skills to conduct scientifically designed investigations in order to be scientifically literate. One path toward scientific literacy for all students is development of nature of science knowledge (Peters 2012). As with self-regulation, goals have to set in science.science learners must set goals for their investigations, Students doing scientific inquiry have to go through a process similar to just like with self-regulation. LearnersThey have to set their goals, take data to see if they are on track with their goals, modify procedures as they go through inquiry, and then evaluate the end results. Also modifying things as they go through the inquiry. I propose that sSelf-regulation will be a big help with the understanding of scientific knowledge, and that .

> **Comment [VKD13]:** If this is your idea.

I feel that with proper teaching of self-regulation, the students in the alternative setting that I have taught in will flourish. I want this research to show that particular students need a web-based curriculum is a good alternative to a regular classroom setting.

Methodology

> **Formatted:** Centered, Indent: First line: 0 pt

My Position

> **Formatted:** Font: Bold
> **Formatted:** Indent: First line: 0 pt

I am a white female whothat has taught for six years at an Baldwin hHigh sSchool in the middle Georgia area. Our school is 60% African American, with Title I specification. The Odysseyware classes that I have taught in are great for those students that cannot function in a

regular classroom setting. I have also seen that the Odysseyware classroom helps with students that need more one on one attention than they would have gotten~~get~~ in a regular classroom with at least thirty students.

~~Before any research can take place, I will have the parents and the students sign consent forms. This is be for their safety and the safety for the research. The parents and students will know that all information taken while doing the research will be put in a secure location and then be destroyed after a year.~~ While performing my research, I taught~~plan to teach~~ the students some self-regulation techniques, take a questionnaire, and have one on one conversations. I was~~ill be~~ able to follow their progress on the Odysseyware program. Every three weeks, I saw~~will see~~ how the students' were~~are~~ progressing. ~~is going.~~ They w~~w~~ere~~ill~~ already ~~be~~ given a time line from the teacher and I was given ~~ill be giving them a~~a progress sheet of their subjects every three weeks. That~~is~~ way they were~~ill be~~ able to have a time line for the whole semester.

Comment [VKD14]: This is just for the irb, not the paper.

While we saw how the students were doing at different times during the course, the final goal was their final score for the science class. Each student will have a pre-test for the individual science class and of course the post test will be their final. The great thing about Odysseyware, they were given a pre- and posttest for each unit. On top of that they were given benchmark tests that all science students would have to take around the six and twelve week marks. Those tests helped the student and I see how the strategy that they were using for self-regulation was working that individual student. During the first week of school I gave instructions over self-regulation and found a way for students in an alternate setting to strive with the learning of science. Plus, other students were shown that an alternative setting is not always a bad thing, and that it could be a great place to learn. The students saw this type of alternate setting as a positive thing.

Comment [VKD15]: This should go in your methodology section.

The following is the survey questioning:
1) I usually keep track of my progress toward my goals.   1   2   3   4   5

2) I get easily distracted from my plans.   1   2   3   4   5

3) I reward myself for progress toward my goals.   1   2   3   4   5

4) I am able to accomplish goals I set for myself.   1   2   3   4   5

5) I put off making decisions.   1   2   3   4   5

6) I have so many plans that it is hard for me to focus on anyone
of them.   1   2   3   4   5

7) I change the way I do things when I see a problem with how
things are going.   1   2   3   4   5

8) I am willing to consider other ways of doing things   1   2   3   4   5

9) When it comes to deciding about a change, I feel overwhelmed
by the choices   1   2   3   4   5

10) I don't seem to learn from my mistakes   1   2   3   4   5

11) I enjoy a routine and like things to stay the same.   1   2   3   4   5

12) I have sought advice or information about changing   1   2   3   4   5

13) I can stick to a plan that's working well   1   2   3   4   5

14) I don't learn well from punishment   1   2   3   4   5

15) I have personal standards, and try to live up to them   1   2   3   4   5

16) I am set in my ways   1   2   3   4   5

17) I have a lot of will power   1   2   3   4   5

18) I set goals for myself and keep track of my progress   1   2   3   4   5

19) Once I have a goal, I can usually plan how to reach it   1   2   3   4   5

20) Little problems or distractions throw me off course   1   2   3   4   5

Students will answered this questionnaire at the beginning of the research time period as

well as at the end. All items were answered using a 5-point scale (1=not at all, 2=a little bit,

3=somewhat, 4=most of the time, 5=always). - I was striving for the fact ofam hoping that as the

students wentgo through this research they wouldill be able to get a better understanding about self-regulation.   I also hoped that as they learned self-regulation, it will help them in the learning process of science and have them thrive in the Odysseyware classroom.

For my research I took three students from each science class; Biology, Physical Science and Earth Science. The group was comprised of five males and four females. All of the students had taken the science class before in a regular classroom or were having to take another science to make up their science credits to graduate. This was not the first time the students had taken an Odysseyware class. The students ranged one ninth grade repeater to three seniors. One of the students was taking Physical Science for the fourth time on Odysseyware and was the repeating ninth grader. He was always in trouble and out of the classroom. Three of the students were seniors while two were tenth graders and the other three were eleventh graders. One of the eleventh graders started the process and then dropped out of school.

Data Analysis

One of the common themes that the students kept emphasizing was that they were ready to get out of the class. They were wanting to be able to catch back up with their class and get back on their academic track. The three seniors were taking Earth Science, due to failing another science class in the regular classroom. They showed that they had the intellect and structure to do the self-regulation and complete everything in a timely manner. The tenth and eleventh graders were able to complete everything in a timely manner as well. They were behind in the process a little till the end. The repeating ninth grader was able to complete the class this time, but was rushing to finish the class at the end. This type of setting helped the students with their

motivation. They were able to see that they could get back on track with their education and graduate on time.

The second common theme with this group was that they all have had problems keeping up with the progression in a regular classroom. The students either just could not keep up with the pace set by the teacher and other students or due to other problems they were out of class a lot of the time. Two of the students told me that they were in class with several of their friends and they talked most of the time. For example, Connie said that when she is in a regular classroom with her friends they talk, pass notes to each other and not pay attention. She even went on to say that when she is a regular classroom it is like social hour for her. Four of the boys were in the class due to behavior problems and were coming out of alternative school. One of the boys, Joe, had been in the alternative school setting due to going in and out of The Youth Development Center. They admitted that if they were in a regular classroom, they would get into trouble. Frank, Henry and Jerome liked the fact that they were able to work on their own without any distractions from other students. Frank said, "If I was in a regular science classroom, I would be talking and getting into trouble. When the teacher would go over things someone would make a joke about it and all I could do was laugh." One of the girls was out a lot due to medical and physiological problems. Becky said that this classroom environment was wonderful for her. She was able to go at her own pace and not worry able other people talking about her being behind or needing more teacher attention. The other two students just could not keep up with the pace in the regular classroom. They needed that extra attention that a teacher that has thirty or more students could not give just to one student.

When talking to the students during this process, they all loved the self-regulation tips that I gave them and a structure way of taking notes. They all told me that they really have never

been taught how to take notes and study for their classes. For each lesson, the student has to write the unit number and name of lesson at the top of each page. Then they have to write down the objectives of the lesson and the vocabulary words. One of the boys said that he liked that the vocabulary words were broken down into the lessons and not given to him all at the beginning like they do in a regular classroom. It made it easier for him to understand and remember them. From there they begin to write down the highlights of the lesson. Some of the students would write down all the notes for that lesson, some would write down the things they didn't understand. This is where I came in with the self-regulation tip. At the end of each lesson are questions that they have to answer. I told them to write down the questions before they start taking notes so they would know what they needed to understand. This technique helps them from writing down all the notes. This is a great time saver technique for them. Connie, and Becky both keep telling me that the self-regulation and structure helped them with life skill instructions.

By the students being in an alternative classroom setting, they were all able to pass the class this time around. They explained that the self-regulation helped them to stay within a certain time frame of where they were supposed to be in the class. Plus with having a structured way of writing notes on top of the one on one support they had a great experience in this type of classroom setting.

Conclusion

Implications

As I was going through this research, I saw several things that I hope that could be implemented into the Odysseyware program on a regular bases. I do wish that the students

that they put in the classroom where put in the class for a specific purpose and not just put in there for no reason. In the years that I taught in that type of classroom, some students were just put in there for no reason. For example, a student was put in Odysseyware due to not liking the teacher that taught it in a regular classroom. Their parent had come in and requested the move. I feel that the student should have just waited to take the class a different semester when another teacher was teaching the subject as well. If students are put in this type of classroom for specific purposes they are more likely to adjust to the environment and thrive in the science classroom. Also if students were screened before being put in, they would have enough space for the students that really need to be in this type of setting.

Have a structure way of doing things is great for students. Most of the time the only structure some of the students get is at school. There is no structure in their home life. One of the boys in the class, can come and go as they please at home. He is really on his own, due to Mom working all the time. With having the students write things the same way for each lesson helps the students stay more on task and not having to worry about how they need to do things. The structure note taking is a valuable asset for the students. They are able to take this into their other classes. One student even told me that the structure note taking has helped in her other classes as well. This was a huge plus for this research. Hopefully, other teachers will be able to use more structured notes in their classroom. I feel this will help all students, especially the first time ninth graders coming into the high school. This will help them transition for the middle school to high school.

Recommendations

My recommendations for this type of program is to have more awareness of the type of students that they put in this classroom setting. The students have to be able to read at least on

an eighth grade reading level or above. I have had students in the classroom that could not read on a fifth grade reading level. Even though the program can read to you, if you cannot comprehend on some type of higher level, you will not succeed in this type of setting. Plus the voice is not a smooth reading voice. When you listen to it, the pronouncing of the word is not correct, a computer generated reading is what you hear. Students that are put in this type of setting for a specific purpose do better in this setting than students that are just placed in the class for no reason but not another place to put them. Students that have problems like able to keep up in a regular setting are great for this setting. They have a teacher that can give them one on one support. This is a great advantage to the program. They also have a smaller classroom to deal with. They are doing the lessons at their own pace and reaching their goals. For these students reaching their goals is great for their self-esteem.

Self-regulation on top of structure note taking is wonderful for this class. I feel that the self-regulation and structure note taking should be standard in all classrooms. I know teachers teach differently, but if the school could have a structure note taking way, the students would not be so confused taking notes in class. They get confused sometimes when one teacher has them do it one way and another teacher has them do it another way. I do realize this would hard to implicate throughout the school, but I feel that the students would do better and get more confidence in themselves. In the Odysseyware classrooms this standard note taking is done. It has shown that students' grades are better and that they are right along with the time constraints for the class. The seniors have told me that they feel confident that they can take this type of structure note taking and make minor changes for when they go into the college setting.   They also told me that the self-regulation skills have helped them as well. The students that hold jobs

and go to school have stated that the self-regulation skills have helped them juggle a job and school. They were glad they were a part of this research.

I do feel this type of setting is very effective for the high school setting, just like the literature review showed. More and more students are having different types of problems and need a smaller setting. I can only wish that funding for education would increase so more students could have this opportunity. The students that were a part of this research thrived and showed promise on getting back into the grade they are supposed to be in and are more confident with their life. I am glad that I decided to this research and the results were positive.

Formatted: Font: (Default) Times New Roman, 12 pt

References

Cleary, T.J., Platten, P., Nelson, A. (2008). Effectiveness of the self-regulation empowerment

    program with urban high school students. *Journal of Advanced Academics, 20*, 70 – 107.

D'Angelo, F, & Zemanick, R. (2009), The twilight academy: An alternative education program

    that works. *Preventing School Failure, 53*, 211 – 218.

Eshel, Y., &Kohavi, R. (2003). Perceived classroom control, self-regulated learning strategies,

    and academic achievement. *Educational Psychology, 23*, 249 – 206.

Falk, B., Blumenreich, M., (2005). The Power of Questions; A Guide to Teacher and Student

    Research. Portsmouth, NH. Heinemann

Flower, A., McDaniel, S.C. & Jolivette, K. (2011). A literature review of research quality

    and effective practices in alternative education settings. *Education and treatment of*

    Children, 34, 489 – 510.

Panadero, E., Tapia, J.A., Huertas, J.A. (2012). Rubrics and self-assessment scripts

    effects of self-regulation, learning and self-efficacy in secondary

    education. *Journal of Phycology and Education, 22*, 806-813. doi:

    10.1016/j.lindif.2012.04.007

Peters, E. (2012). Developing content knowledge in students through explicit teaching

    Of the nature of science: Influences of goal setting and self-monitoring. *Science &*

    Education, 21, 881 – 898. doi:10.1007/s11191-009-9219-1

Salkind, N.J., (2009). Exploring Research. Seventh Edition. New Jersey, Prentice Hall

Savin-Baden, M., Major, C.H., (2013). Qualitative Research; The essential guide to theory

    and practice. New York. Routledge

Whipp, J.L., Chiarelli, S. (2004). Self-regulation in a web-based course: a case

    study. *Educational Technology Research and Development Journal, 52*,

5-22

Wolcott, H.F., (1994). Transforming Qualitative Data. Thousand Oaks, Ca. Sage Publishing

Zimmerman, B.J. (2008). Goal setting: A key proactive source of academic self-regulation. In

      D. H. Schunk & B. J. Zimmerman (Eds), *Motivation and self-regulated learning: Theory*

      Research and applications, (pp. 267 – 295). New York: Lawrence Erlbaum Associates.

There are no sources in the current document.

<center>Appendix</center>

Survey Questions:

1) I usually keep track of my progress toward my goals.   1   2   3   4   5
2) I get easily distracted from my plans.   1   2   3   4   5
3) I reward myself for progress toward my goals.   1   2   3   4   5
4) I am able to accomplish goals I set for myself.   1   2   3   4   5
5) I put off making decisions.   1   2   3   4   5

6) I have so many plans that it is hard for me to focus on anyone
of them.   1   2   3   4   5

7) I change the way I do things when I see a problem with how
things are going.   1   2   3   4   5
8) I am willing to consider other ways of doing things   1   2   3   4   5

9) When it comes to deciding about a change, I feel overwhelmed
by the choices   1   2   3   4   5
10) I don't seem to learn from my mistakes   1   2   3   4   5
11) I enjoy a routine and like things to stay the same.   1   2   3   4   5

12) I have sought advice or information about changing   1   2   3   4   5
13) I can stick to a plan that's working well   1   2   3   4   5
14) I don't learn well from punishment   1   2   3   4   5

15) I have personal standards, and try to live up to them   1   2   3   4   5
16) I am set in my ways   1   2   3   4   5
17) I have a lot of will power   1   2   3   4   5

18) I set goals for myself and keep track of my progress   1   2   3   4   5

19) Once I have a goal, I can usually plan how to reach it   1   2   3   4   5
20) Little problems or distractions throw me off course   1   2   3   4   5

<center>Taken directly from The University of New Mexico</center>

Self-Regulation Survey

1) What are some of your qualities that will make you succeed with self-regulation techniques?

2) What are some of your qualities that will make you fail with self-regulation techniques?

3) How do you see self-regulation helping you with your online science class?

4) Do you thing that self-regulation will help you in your other subjects and in other aspects of your life?