Designing instruction to meet the needs of diverse learners

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ABSTRACT

Tell me and I forget. Teach me and I remember. Involve me and I learn. These words, attributed to Liu Xiang in 818 A.D. and translated by H. H. Dubbs in 1928, emphasize that a focus on student engagement has been in existence in higher education for centuries. Yet, still it continues to be considered a trend or passing fad by some faculty. However, strategies are attracting strong advocates among faculty who use it in the classroom as a way to enhance learning. Methods used in the active learning classroom are not universal. Prince (2004) emphasized that the key is student engagement in purposely planned activities introduced into the classroom, in contrast to the traditional lecture format where students passively receive their information from the instructor. Zepke and Leach (2010) suggested that teachers need to create experiences that challenge students' ideas while involving them in learning both autonomously and with others.

This qualitative study examined the perceptions of junior and senior pre-service education students with regard to their experience with a variety of concrete instructional activities. After participating in each activity, students were asked to respond to four questions: a. How did this activity help you learn the content? b. Describe your most (or least) successful interaction with a peer that led to learning. c. How might you do this differently? d. What was the best/worst/most challenging event that happened during the activity? The results of the study indicated that exposure to and reflection on more interactive instructional techniques will impact the opinions and practices of pre-service teacher candidates.

Keywords: student engagement, diverse learners, active learning, higher education

INTRODUCTION

According to Boswell and Eison (1991) active learning has generally been defined as a variety of instructional methods that engage students in the learning process. These strategies require students to participate in meaningful learning activities that cause them to think intensely about what they are doing and learning. Based on the research of Zepke and Leach (2010), student engagement is defined as "student's cognitive investment in, active participation in, and emotional commitment to their learning" (p. 168). They further describe engagement as "students' involvement with activities and conditions likely to generate high-quality learning" (p. 168). The key to unlocking what might work with students is within the students themselves.

Purpose

The purpose of this study was to examine the perceptions of junior and senior level pre-service teacher education students with regard to the effectiveness of a variety of instructional learning activities.
After participating in each activity, students were asked to respond to the following questions reflecting on their experiences:
1. How did this activity help you learn the content? Were there advantages/disadvantages?
2. Describe your most/or least successful interaction with a peer that might have led to learning for either of you.
3. How would you do the activity differently next time?
4. What was the best/worst/most challenging event that happened during the activity?

Review of the Literature

The review of the literature traces the history of student engagement in higher education. The significant topical areas include active learning, problem-based learning, cooperative and collaborative learning, the National Survey of Student Engagement, and the Advancement Via Individual Determination (AVID) Postsecondary Strategies for Success Program.

Active Learning

The terms used to define active learning are not universal and are often interpreted differently. However, Prince (2004) provides some generally accepted definitions for the vocabulary used in the pedagogies of active engagement and classroom practices. The core elements of active learning consist of student engagement in purposely planned activities introduced into the classroom. This provides a direct contrast to the traditional lecture format where students passively receive their information from their instructor.

Cooperative/Collaborative Learning

Millis and Cottell (1998) and Feden and Vogel 2003 defined cooperative learning as students working together in small groups in pursuit of common goals or learning objectives, but assessed individually by the instructor. Stahl (1994) and Slavin (1983) reported that multiple models of cooperative learning exist, but its core elements focus on cooperative incentives as

opposed to competition to promote learning objectives. Johnson, Johnson, and Smith (1998) describe a model of cooperative learning often found in engineering courses that incorporates five specific elements, face-to-face promotive interaction, mutual interdependence, appropriate practice of interpersonal skills, individual accountability, and regular self-assessment of team functioning. Faust and Paulson (2014) noted that collaborative learning differs in that it has been defined as strategies where the instructor and students work together to present material or create assignments.

Problem-based Learning

Prince (2004) described problem-based learning as an instruction strategy where the instructor introduces multiple relevant problems at the beginning of a lesson cycle. These problems are used to provide both context and motivation for discipline-specific instruction. Problem-based learning requires significant self-directed learning on the part of the students. Gijselaers (1996) stated that, "Students must learn to be conscious of what information they already know about the problem, what information they need to know to solve the problem, and the strategies to use to solve the problem" (p. 1). Problem-based learning requires students to become metacognitively aware.

National Survey of Student Engagement

The National Survey of Student Engagement (2008) surveys students' perception of classroom-based learning in more than 769 institutions as an element of student engagement during their college education. The NSSE report conceives that successful student engagement is not the product of a single course or two in an entire academic career, but instead is a pattern of involvement in a variety of continuing academic activities. The NSSE report equates student engagement with the quality of a college education. This annual survey asks freshmen and seniors how frequently they have asked questions in class or participated in discussions, participated in projects requiring integrating new ideas and information from multiple sources, participated in community-based projects, used email to communicate with instructors, received prompt and frequent feedback from instructors regarding their academic performance, or participated in peer-to-peer tutoring. Student responses were organized around five benchmarks of effective educational practice:

1. Active and collaborative learning: Students learn more when actively, intensely engaged in applying their knowledge across many situations.
2. The level of academic challenge: Schools encourage students' achievement by emphasizing the importance of student effort and establishing high expectations.
3. Enriching educational experiences: Engaging learning opportunities both outside and inside the classroom (community service, collaboration, internships, capstone projects) enhance learning.
4. Student-faculty interaction: Students learn from faculty and experts in their fields that serve as mentors and role models..
5. Supportive campus environment: Students are more satisfied and motivated in educational experiences that actively promote their learning and stimulate intense social interactions.

The National Survey of Student Engagement (2008) provides data to colleges and universities to assess and improve undergraduate education, facilitate benchmarking efforts, as

well as inform state accountability and accreditation efforts. This data makes it possible to consider the experiences of all students across hundreds of institutions and support faculty instructional practices.

AVID POSTSECONDARY COLLEGE SUCCESS PROGRAM

Advancement Via Individual Determination (AVID) began more than 30 years ago as a mission to serve the needs of under-represented populations of students and close the achievement gap by preparing students for college readiness. The continued success in the secondary school led to the AVID Postsecondary System. The foundation remains quite the same as was implemented in the secondary schools. Students are met with a supportive environment, are guided to develop time management and organizational skills, to develop increased learning and persistence in effort. Ongoing professional development for all stakeholders; students, faculty, and administrators encourage increased student engagement in classroom instruction, thereby increasing both student interest and learning. The campus culture creates high expectations for student success.

AVID Postsecondary helps students to develop skills to deal with the academic, cultural, and financial challenges that colleges create. The impact results in students who are more likely to take ownership and accountability for their academic behavior and competencies. A sense of self-efficacy is reinforced by peer support and mentoring.

However, AVID Postsecondary is not only an accumulation of effective engagement strategies; it is holistic and designed to engage the whole university. Teacher Preparation Initiatives provide professional development that reinforces a college-going culture. Teacher candidates and faculty attend sessions that provide them with practical experiences using strategies involving writing, inquiry, collaboration, organization, and reading. As AVID strategies are embedded into the teacher education program, faculty are supported in efforts to increase student engagement. The goals of learning, persistence and success beyond college are addressed as students pursue their degree.

In addition, Watt, Yanez, and Cassio (2002) reported on the impact of AVID and the professional development provided. Their study showed AVID students outperformed their peers on state assessment tests, student attendance, and grade-point averages. AVID in secondary schools was designed to ensure that under-represented students succeed in high school and be prepared for college. The AVID Program, through its WICOR (Writing, Inquiry, Collaboration, Organization, Reading) strategies provides instruction to meet the needs of diverse learners and ensures engagement. Huerta, Watt, and Reyes (2013) emphasize that “Schools implementing AVID should emphasize the benefits of AVID strategies…” (p. 97). Huerta, Watt, and Reyes (2013) also confirmed in their study that AVID secondary schools graduates were found to achieve “intermediate outcomes of success, such as 1st year retention, at the higher levels than their institution’s student populations” (p. 86).

RESULTS

This study involved 76 elementary preservice teacher education students; junior and senior level. Gender was primarily female with 62 women and 14 men. After participating in fifteen AVID student engagement activities, students completed a four-question survey that measured their opinions related to their participation. The guiding questions in the survey

facilitated an interesting analysis of student perceptions regarding the AVID strategies. Common themes arose from student responses in three classrooms with different professors.

In response to how the strategy helped them learn, a common theme arose: Peer interaction facilitated by the teacher, prompted growth in knowledge, confidence, and maturity. One student commented, "The more I talk out loud in front of other students, the better speaker I became." The concept of being anxious about speaking aloud resounded through multiple student responses.

Other themes included the value and need for note-taking, student reflection on their need for attending more closely to their reading, student realization of the value of visuals and graphics, the sharing of responsibility, and, in general, active engagement in multiple ways. While the vast majority of students' comments identified were positive in nature, there were a few who cited difficulties in group settings that made learning challenging for them.

An Analysis of AVID Strategies with Student Reflections

1. Philosophical Chairs

Custer et al. (2011) described Philosophical Chairs as an engagement strategy that focuses on inquiry, while involving students in collaborative activity requiring them to read, take notes, and organize their thoughts. Students are given a prompt, mark the text as they read it, and then agree or disagree with the author's position on the statement. A mediator, who is neutral, facilitates the dialogue and ensures that only one student speaks, and the process goes from one side to the other. In addition, the speaker must restate the previous argument prior to stating their position. This keeps students listening. A student-written reflection is recommended to include: The initial statement that was discussed, the student's arguments for this statement, the student's arguments against this statement, the student's position and the reasons for his/her position, and whether or not this student changed his/her mind during the discussion, including which arguments altered this student's thinking and why.

Common reflections related to this activity demonstrated how reflective preservice teachers can be when given the opportunity. One said, "Discussing different procedures that might be successful in various content fields helped us see other perspectives on teaching." Also, a really telling statement was given to the instructor as one student said, "Having a peer repeat what the teacher said in different words helped me to understand." Finally, a number of students shared the sentiment of this student who said, "It was great that everyone got passionate about the subject matter." Although students highly praised this strategy for its collaborative nature and ability to promote thinking for everyone, some concerns were identified. The first idea related to the difficulties of remaining open to both sides of an idea when they were so certain they were right. The second issue dealt with not being able to speak when they wanted to, but rather follow the structure of speaking only when holding the brain (a manipulative shaped like the brain was tossed between two opposing sides to ensure that only one student spoke at a time). These responses were probably the students who are the dominant speakers in usual class discussions.

2. Think-Pair-Share or Think-Pair-Write-Share

Custer et al. (2011) listed the steps in Think-Pair-Share or Think-Write-Pair-Share: Students examine a question and write a 3-5 minute response. Students share with a partner their responses and their reasons to support them. Partners then share their responses with the class.

The importance of interaction with a buddy or small group arose in several of the engagement strategies. During the Think-Pair-Share multiple students talked about the benefits of hearing more than one opinion or point of view. One student commented on "hearing from a predominately visual learner who painted a picture" to challenge her thinking. Another stated, "Hearing more than one opinion was good to expand and elaborate on my knowledge."

3. Graphic Organizer

Custer et.al (2011) stated that Graphic Organizers increase metacognitive skills and help students organize their learning. These visual displays allow teachers and students to organize complex information in such a way as to make complex concepts and data easier to understand. Graphic organizers are shared with the class after the instructor brainstorms to generate ideas from the text. Each group is given two graphics to complete, one being more complex. Starting with the easiest graphic, the groups share their visual representations to the class. The process is repeated with the more difficult graphic organizer. Finally, the students write a reflection on the experience explaining what they have learned.

Peer interaction was also cited as important in the use of the graphic organizers activity. Virtually all of the students related that the graphic organizer process, not the graphic itself was helpful in their learning the information.

They felt that working with the visuals helped them learn and brainstorming with other students helped them make sense of the second graphic. One student said, "It was interesting that each idea helped us understand the last one." Another stated, "I don't think any of us could have done the second graphic by ourselves."

However, several students reflected that with the difficult topic they could have used more practice as a class. The most exciting comment reflected the sentiments of many. "None of the members of my group were confident when we started and when it was over, we were quite proud of ourselves."

4. The Group Poster

Custer et al. (2011) emphasized that the Group Poster offers the opportunity for students to collaboratively develop and deliver an oral presentation using visual aids. The poster should provide relevant information from a written paper or project submitted to the instructor. In presentation, everyone must speak with no note cards. Prior to presentation, students participate in a "Gallery Walk." Students place their posters around the classroom and place their post-it notes on each of the posters with changes they think would improve the poster and the oral presentation. Following a debrief, each student should receive a group grade and an individual grade.

The Group Poster also offered opportunities for students to interact with one another. Multiple student comments related to how interaction helped them "elaborate and expand" ideas or look at "perspectives on how to manage a problem, and share different field experiences that made them better teachers."

Student comments were highly favorable and reflected in these examples, “The best thing was that we got to learn from each other and work as a team and “The best was using peers as resources for getting different ideas and perspectives.

A few students expressed their frustration in the difficulty of the process, for “having to think outside the box.” However, one of student elaborated, saying “although it was challenging, in the end it was enlightening.” As with several other strategies, a few outliers indicated frustration over their inability to speak whenever they wanted, rather than listen to others give their input. Again, these comments came from a only handful of responders.

5. Jigsaw

Custer et al. (2011) stressed that Jigsaw Home Group/Expert Group promotes deep reading skills, effective listening skills, and mastery of content through discussion, and synthesis of ideas. The steps include dividing students into home groups and assigning each member of the groups a different part of the text to read and take notes to become an expert for that section. Students move to their numbered group to form expert groups. These groups discuss their portion of the text, share notes, clarify questions, and summarize the information. Students return to their groups to teach the material in their section. Jigsaw culminates with a class debrief.

Multiple students identified the Jigsaw strategy as beneficial because of collaboration, sharing, and active engagement. One student emphasized that paraphrasing made everyone help each other think. However, with this strategy, some students felt like they could not get the whole picture because everyone in their group did not do their part. One student recommended that the instructor “collect the notes and make each person be required to do the task.” They did say that in their reflection their confusion was addressed during the total class debrief. However, this might be a clear message for closer monitoring of the activity.

6. Carousel Brainstorming

Custer et al. (2011) described Carousel Brainstorming as a variation of brainstorming that works well in preparation for a separate activity in which the ideas generated will be used for a more complex assignment. This strategy encourages students to offer ideas and to react to the ideas of their peers in a non-critical safe environment. It lays the groundwork for a more thoughtful discussion and can be the first step in a consensus-building exercise. In addition, the Carousel allows students to discuss their ideas and to determine where they want to focus an assignment. Although Carousel Brainstorming is primarily a collaboration activity, learners will also use writing, organization, and reading skills. Multiple students enjoyed Carousel Brainstorming and agreed with the sentiment of these students’ words, “It was fun to brainstorm and then look up the information in the books” or “It was great bouncing ideas off of each other while writing.

7. World Café

In many disciplines, students rarely get the opportunity to interact with a complex problem from start to finish. Custer et al. (2011) lists the World Café strategy as using collaborative groups to investigate a large case or issue and work toward solutions. Participants

are asked to analyze, synthesize, and evaluate the effectiveness of solutions and respond to group decisions regarding what they would do if they were one of the key players.

The World Café strategy allows students to interact with everyone. During one session, multiple students expressed excitement in the continuous rotation because "everyone was exchanging ideas and information." Others felt that they had more control over their learning and because of that they were able to see ways to connect the different language theories to activities they might do in the classroom.

Custer et al. (2011) listed the steps for World Café:

1. Groups of 3-5 read part 1 of the case and record responses (10-15 minutes)
2. Two students rotate from each group moving to the next station; one student stays behind to summarize completed work. New members add to the chart (3-5 minutes)
3. Each new group reads part 2 of the case, discusses it, and writes key ideas in the chart. (10-15 minutes)
4. Step 2 is repeated.
5. Continue until all students have rotated through each station.

Debrief.

Student comments favored rotating and exchanging information in every example lesson using this strategy. One student seemed to catch multiple students' ideas saying, "This activity helped me learn this content because instead of a lecture, we all had an active part in the input of information on the poster paper.

8. Novel Ideas/Four Corners

Custer et al. (2011) described Novel Ideas/Four Corners as students generating ideas in response to a prompt. Students access their understanding of the material and place themselves in four groups. Level four students are those who believe they know the most about the material, and level one, the least. Each group discusses the topic. A spokesperson from Level one reports, then level two, without repeating anything already stated. This continues until every group has reported. A class debrief follows.

The general sentiment of students on the Four Corners activity is reflected in this student's words, "I always enjoy learning from group collaborations." However, with the strategy, several students also reflected that they overestimated their knowledge level and their group wasn't "completely sure of the topic," they were discussing. They concluded that by the end of the class period there was complete understanding but there was some frustration during the process. According to multiple students, peer interaction which was facilitated by the teacher prompted growth in knowledge, confidence, and maturity.

9. One Pager

Custer et al. (2011) described the One Pager as a summarizing activity that helps students to visualize what they are reading and prepare for additional activities that may be required during the reading assignment. One Pagers can be used as a final product, a pre-writing exercise, or a group sharing of ideas…etc.

Custer et al. (2011) listed the steps as: Students read an article and select 2-3 passages that are meaningful to the author's point. They record their reactions anywhere on the page

(analytical, not personal). The One Pager should include: Title and author, concise statement of theme, three quotes, one or more graphic representations or visuals that are interpretative, a personal response to each excerpt selected (p. 45).

10. Quickwrite

Custer et al. (2011) reported that a Quickwrite can be used as a catalyst for thinking and as a preparation for a reflection on a learning strategy that is collaborative, inquiry-based or focused on reading or writing. A class discussion follows to deepen understanding of content while practicing the use of academic language (p. 34).

11. One-Minute Pager

Custer et al. (2011) described the One-Minute Paper: At the end of the class, students synthesize knowledge and ask unanswered questions while developing writing skills. Reflections should include, "How can I use what I learned as well as what did we do and what did I learn."

Another theme that emerged repeatedly in student reflections related to the need for note-taking in class. One student said, "I found out real soon that I should take notes in class. Figuring out what to say for my 'One-Minute Paper,' to summarize the class period took most of the scheduled minute." Still another student had a great reflection in saying, "I realized that if I organized the notes I took in class immediately after class that they would make more sense to me when I was studying for tests." Following the "Quick Write" activity, another student made a similar observation, "I need some think time, I barely was able to write anything in the two minutes that were given to me."

12. Hatful of Quotes

Custer et al. (2011) listed the purpose and steps of a Hatful of Quotes as students responding in writing to different passages or quotations from the text. During the class, the passage is read aloud and the students assigned to that passage share their responses. Other students comment on that passage. The process continues as students make connections, building upon what they have already heard to what is being added. The final steps involve debriefing with the whole class and having students write a reflection on what they learned.

Following the "Hatful of Quotes" strategy an interesting theme emerged as multiple students expressed their realization that they must not be attending too closely to their text as they read. One student said, "Quotes gave us something to think about. I couldn't believe they came out of the textbook." Another student said, "The Hatful of Quotes" related to so many topics on composition. I wondered if they were true or not and really wanted to go back and read the text more carefully." The only concern that was addressed by students related to what teachers could do to make adjustments for the reading and writing abilities of their students. Follow-up in that class addressed differentiation using quotes from easier texts on the same topic for struggling readers and writers, and English Language Learners.

13. Backward Mapping

Another AVID strategy delineated by Custer et al. (2011), Backward Mapping is a method for analyzing and developing smaller steps to complete a project, a system where students create "to-do" lists to organize the work in order to complete the project in a timely manner. The student defines the end result of the task and works backward, identifying steps and their order to complete the project on time.

Students generally made positive comments about this technique saying it facilitated "time management" and planning. One student stated, "It helped me visualize my writing strategies." Another said, "I have a mental structure about how to work on my assignments." The general consensus, though, was that it was difficult to do the first time. "Gauging time allotments for something yet to be done" caused some anxiety. "Just getting started seemed to be difficult." However, it is a technique they are likely to use again.

14. Inside-Outside Circle

Custer et al. (2011) listed the purpose and steps of Inside/Outside Circle as providing the opportunity for students to consider a prompt with a variety of partners in order to broaden their understanding. This strategy can be used when students are beginning to explore issues in the prompt.

1. Divide students into two equal groups and share a prompt.
2. Place one group in the inner circle facing a member of the second group in the outer circle. (ultimately form one circle inside the other) Students directly facing each other become partners.
3. Provide a limited amount of time for partners to discuss the prompt.
4. Have the outer circle rotate/move to the left 2-3 partners while the inner circle waits in their position to face new partner.
5. Repeat steps 3 and 4 as many times as necessary for students to fully discuss the prompt. Follow up with students writing a reflection or quizzing each other. (p. 171).

Students were highly positive about the Inside-Outside strategy. It was interesting to them that they at first felt like their responses were much the same, but then extended their thinking. One student described the feeling best in saying, "Answers were so similar, but then, hearing them caused me to expand my ideas." Other students emphasized how the strategy made them comfortable in speaking because it was one-on-one and they were given so many ideas as they changed partners. Nobody had concerns regarding this strategy.

15. 3-2-1 Summarizing

Custer et al. (2011) described 3-2-1 Summarizing to include having students:

1. Select a text and read and mark the text for key ideas.
2. Summarize the text by identifying three things they learned and two things they found interesting in the reading.
3. Share their work with other students, either in small groups or pairs
4. Individually, determine one question they still have and want to learn more about. Share these with the whole class.
5. Follow up by conducting a class discussion over the results of the activity (p. 200).

Students had varied responses about this strategy. When completed with a fiction selection the responses were positive and emphasized how working in small groups was an entertaining way to effectively analyze a narrative and include all of the story elements. Because

the class involved methods of teaching reading class, their questions related to how to teach the more difficult parts of the narrative to elementary students, (theme, tone, etc.). However, when the same strategy was used with the required textbook assignments the responses were mixed. The vast majority of students had pre-read the text as was assigned and reflected as this student had. “Interacting as a group helped me learn and understand the stuff better.” Those who had not prepared made comments that are reflected in this student’s words, “I am only sure what is important when I see the slides and the professor is talking about it.” This reaffirms the importance of background knowledge in student perceptions.

CONCLUSION

Zepke and Leach (2010) suggest that student engagement can be promoted in numerous ways saying, “When institutions provide opportunities for students to learn autonomously and with others, and to develop their sense of competence, students are more likely to be motivated, to engage and succeed” (p. 170). This study has shown student responses that demonstrated that active learning in groups, social skills, and peer relationships are important in intensely engaging learners, and maintaining their interest in challenging educational experiences.

Zepke and Leach (2010) also emphasize that students need to be reflecting, conjecturing, evaluating, and making connections between their learning and that it is the teacher’s responsibility to create rich educational experiences that challenge students’ ideas and stretch them as far as they can go” (p. 171).

This selection of fifteen strategies from Advancement Via Individual Determination (AVID) provides a plethora of examples of the how in guiding students on their path of growing and learning. AVID is not course content or any specific academic discipline. It is about powerful pedagogy that guides students to success. These evidence-based practices provide a myriad of instructional engagement strategies to support student success. They enable students to strengthen connections between their learning, think critically, to develop peer relationships, to articulate and expand their ideas about their discipline – specific content, to communicate effectively in their professions, and to develop confidence in themselves as learners. These are skills that will continue to benefit students in and out of the classroom, long after the course has ended.

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