GUIDED NOTES IN UNDERGRADUATE INSTRUCTION: MORE THAN FILL-IN-THE-BLANKS

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ABSTRACT

This critical reflection of practice is based on the examination of three different modes of implementation of guided notes in undergraduate courses. Guided notes were used to respond to student needs, and assessments focused on student perspectives on the use of guided notes were aimed at learning more deeply about diversity of backgrounds and experiences of students. The use of guided notes was adapted across several courses following a reflective approach guided by outcomes from assessment and pertinent literature. This reflection starts with an introduction to guided notes, and then it is followed by results from assessments of the effects of guided notes on student perspectives on learning and satisfaction, as well as on quiz scores for one of the courses. Guided notes were implemented consistently, partially, and voluntarily, across different groups. Students tended to rate guided notes positively, and in some cases negatively. In addition, guided notes may have significantly increased quiz grades in one course. Based on a critical view of the results and a review of pertinent literature, advantages and disadvantages of using guided notes are outlined. Some lessons learned, best practices for implementation, and assessment of the use of guided notes in undergraduate instruction are described.

Keywords: guided notes, note-taking, studying, undergraduate students.

Guided notes have been described as handouts based on lecture notes or readings in which the instructor strategically omits relevant information so that the students fill in the blanks (Konrad, Joseph, & Eveleigh, 2009; Twyman & Heward, 2018; Williams, Weil, & Porter, 2012). But guided notes, also referred to as lecture fill-in sheets (Vargas, 2013), may also include spaces to summarize information, prepare or complete diagrams, draw, and so forth (Dye, 2000). These pedagogical aids may be used during class or outside of class.

The preparation and implementation of guided notes usually involves the following general steps: (1) clearly specifying course objectives, (2) preparing a set of notes based on the essential information to be covered on a given session, (3) identifying relevant information, (4) omitting such information from the notes (and leaving evident blanks for student to fill), and (5) providing corresponding instructions for the use of guided notes (Barbetta & Skaruppa, 1995; Heward, 2001; Wright, n.d.).

Twyman and Heward (2018) classified guided notes as a research-based, low-tech tactic to address some challenges of group instruction, and with the following strengths: 1) facilitate frequent responding, (2) integrate feedback, (3) give the instructor ongoing assessment of student understanding of the content, (4) encourage engagement, and (5) promote learning. Although guided notes may improve the quality of teaching,

they are only one component of the instructional effort (Barbetta & Skaruppa, 1995).

Guided notes are historically rooted in peda-gogical methods for K-12 education, and frequently found to be connected to strategies of engagement and teaching note-taking in special education (Larwin, Dawson, Erickson, & Larwin, 2012). Although research compilations of guided notes in K-12 education (e.g., Konrad et al., 2009; Larwin et al., 2012) highlight the advantages of guided notes across instructional levels and programs, it is also important to examine potential disadvantages. Research reviewed below extended the examination of guided notes in undergraduate education.

STATEMENT OF PROBLEM

One reason to systematically examine the use of guided notes is the paucity of research on this pedagogical strategy (Konrad et al., 2009; Twyman & Heward, 2018) particularly in undergraduate instruction. Although limited, the empirical support for the use of guide notes is promising (Larwin & Larwin, 2013). Some of the evidence reviewed suggests that guided notes contribute to focus in class and organization of study materials, and thus they contribute to improving performance in evaluations of learning. For example, the use and accurate completion of guided notes has been found to be positively correlated with higher scores on quizzes and other learning evaluations in undergraduate psychology courses (Glodowski & Thompson, 2018; Neef, McCord, & Ferreri, 2006).

Further research on the use of guided notes is warranted also because of their versatility. As mentioned earlier, guided notes have been used successfully with students across instructional levels (e.g., high school, college) (Konrad et al., 2009) and with students diagnosed with developmental disabilities (Lazarus, 1993; Mastropieri, Scruggs, Spencer, & Fontana, 2003). Guided notes have also been effectively used with undergraduate students in a variety of academic disciplines such as psychology (Austin, Lee, & Carr 2004; Barbetta & Skaruppa, 1995), engineering (Lawanto, 2012), and medicine (Gharravi, 2018), among others.

There is also evidence of the effectiveness of the use guided notes in undergraduate courses across cultures (Chen, Teo, & Zhou, 2017, included participants from a university in Taiwan) and post-graduate courses (Gharravi, 2018, participants were medical students in a university in Iran). Guided notes have been useful to English language learners, facilitating note-taking while attending to language and content (Tam & Scott, 1996). Guided notes also promote student engagement (Heward, 2001) and contribute to building note-taking skills (Barbetta & Skaruppa, 1995; Chen et al., 2017) in undergraduate instruction.

The positive impact of guided notes reported in the literature described above, responds to needs frequently reported by students, especially in regard to engagement in class and contributing to studying outside of class time. Thus, the use of guided notes examined in this reflective practice was centered on responding to these student needs. In this reflective practice we also critically assessed whether the strong positive influence of guided notes reported in the literature is consistently evidenced in several undergraduate psychology courses.

The experience of the first co-author using guided notes in courses taken for professional development, and becoming familiar with the literature on the topic, propelled the creation, implementation, and assessment of guided notes in psychology undergraduate courses. Assessments of student perspectives on the use of guided notes were aimed at considering rapidly shifting institutional contexts and diversity of students' backgrounds and experiences.

PROJECT DESCRIPTION

Students from four undergraduate psychology courses taught at a mid-size (approximately 4,000 students), public, liberal-arts institution in the New England area of the United States participated. Although no demographic data were collected as part of this project, at the time, 38% of students at this emerging Hispanic Serving Institution (HSI) identified as a minority group. Due to current shifting demographics, the institution is expected to achieve the federal designation of HSI (a 25% Latinx enrollment is the federal threshold in the United States) (Garcia, 2019).

Most of the students who participated in the present project had declared a major in psychology. In the Department of Psychology, at the time of the present project, student demographics were as follows: 80% women, 20% men; 41% of students self-identified as part of a minority group; and 56% were first-generation college students (Caso, 2019).

These courses mentioned above were taught by the same instructor (first co-author). The other co-authors were two undergraduate psychology students enrolled in a directed study course. These student co-authors were both invested in deepening their experience in research in teaching as they both were pursuing a career in education. These students, working under the supervision of the first author, contributed to the literature review of this project, data analysis, and interpretation of the results.

The present reflective practice was a rigorous study of the use of guided notes and the assessment of their impact on student learning and perspectives on learning, particularly focusing on whether the impact of guided notes was uniformly positive. This reflective practice was also aimed at contributing to the refinement of the preparation, use, and assessment of guided notes the future. The present examination of guided notes was exploratory and guided by results obtained. The decisions about mode of administration of guided notes and types of assessments, were made under a reflective approach informed by pertinent research, assessment outcomes, and other analytical tools.

The reflective approach of the present project was based on Rodgers's (2002) view of Dewey's reflective model, which is grounded on the scientific method. The reflective process involved the criteria of meaning making from experience, rigorous thinking, community reflection, and suggested attitudes for reflection (Rodgers, 2002).

The experience of the first author using guided notes as a student and studying the literature on guided notes, channeled the decision of implementing guided notes to respond to student needs. In addition, the assessment of student perspectives on the use guided notes was aimed at capturing individual perspectives of students, considering demographic shifts, and concerns with guided notes as their impact may not be uniformly positive across students. Conversations with students and colleagues about guided notes also were part of the collective reflection (Rodgers, 2002) on the use of guided notes.

The following three modes of implementation of guided notes were used in four classes: (1) consistent, in class, delivered as hard copies in class (two sections of the course, Psychology of Learning), (2) partial, in class, as hard copies (one section of the course, Sensation and Perception), and (3) in class as hard copy, introduced at the beginning of the semester and then available electronically for voluntary completion (later section of the course, Psychology of Learning).

Surveys were used to assess the perspective of students on the use of guided notes to facilitate learning experiences in the classroom (e.g., note-taking, studying, engaging with content). In addition, the effects of the use of guided notes on quiz scores were examined with statistical methods in one of the courses. Quantitative and qualitative methods, described below, were employed.

REASONS FOR THE PROBLEM: RESULTS AND ANALYSIS

The modes of implementation of guided notes across the four classes were compared by examining the level of satisfaction with guided notes as measured by a Likert-type scale ranging from one to five (1 = not satisfied; 5 = very satisfied). Percentages of responses according to level of satisfaction are shown in Table 1 for each course. Results are presented for each course in the order in which they were taught.

Table 1. Percentage of Ratings on each Level of a Likert-type scale on Students Satisfaction with Guided Notes

Mode of Implementation					
Course Title, (N)	Percent of Ratings				
	Not Satisfied			Very Satisfied	
	1	2	3	4	5
Consistent, In Class, Hard Copies, Psychology of Learning (N = 48)			3	15	81
Partial, In Class, Hard Copies, Sensation and Perception (N = 24)	7	1	33	13	46
Voluntary, Online, Psychology of Learning (N = 26)		8	27	27	38

Psychology of Learning:
Consistent Implementation

Two sections of a Psychology of Learning course (N = 48) received hard copies of guided

notes consistently throughout the semester. Figure 1 shows sample pages (pp. 1, 4) of such guided notes used in this course. Toward the end of the course, students rated their experience using guided notes and provided comments on their level of satisfaction with them (see Table 1, first course). A binomial test comparing the average obtained ratings (M = 4.78, rating range = 3.00-5.00, SD = 0.48) against the midpoint of the scale yielded a statistically significant difference (p = .01, two-tailed) which confirms that most ratings were above the midpoint of the scale.

After the rating scale, an open-ended question provided an opportunity to write comments on the level of satisfaction with the guided notes. The comments provided were transcribed, read, and analyzed separately by each co-author. The following themes within the comments were identified: helpful and not helpful.

Within the theme of helpful, the following keywords within the comments were included: helpful, maintain attention, provide more time, preparing for exams, clear, straight to the point, engagement, enjoyment, keeps me on track, guide in taking better notes, better understanding of the material, studying is easier, and convenience.

Table 2. Selected Comments about the Level of Satisfaction with Guided Notes (Open-Ended Question) with Corresponding Theme for each Course.

Comments	Theme (100% agreement)
Psychology of Learning (two sections)	
Guided help a lot because not only do they force you to pay attention, but also really help you better understand the material	Helpful
Very helpful to stay engaged and easy to follow along. Keeps me focused more having to write less	Helpful
Filling in the guided notes doesn't help me very much. Taking my own notes and writing examples helps me the most.	Not helpful
I think these are very helpful because you can pay more attention to the teacher when they are talking instead of worrying to get down all the notes.	Helpful
Love the guided notes definitely a very helpful thing to do to start on track with course discussions, assignments, and quizzes	Helpful
Sensation and Perception	
The guided notes are nice, but personally handwriting my own notes helps me understand and remember the content better	Not Helpful
They were really helpful with quiz and exam prep. Also gave me space to listen in class instead of writing everything down.	Helpful
I just feel better taking my own notes. The guided notes were distracting and too simplistic	Not Helpful
They made me less likely to take my own notes and understand the lectures	Not Helpful
Was able to focus on the lecture as a whole more and listen to real life examples	Helpful
Psychology of Learning	
They're helpful because it's good to have something to review when studying. It helps me see how much I've learned during class. I like to fill in the blanks at home, that way I can see how much I can remember from class	Helpful
I do not use the guided notes. I already have an established note-taking strategy that works well for me	Not helpful
I like the guided notes because they are clear and to the point	Helpful
I do not tend to use the guided notes unless they are brought to class	Not helpful
Helpful for studying	Helpful

Psychology of Learning PSYC 236

Guided Notes Chapter 1.

Name: _____.

Goal: To review the historical background of psychology with emphasis on behaviorism.

Outline

- Historical Background
  - Aristotle, Descartes, The British Empiricists
  - Structuralism and Functionalism
  - The Theory of Evolution
  - Behaviorism
    - Methodological Behaviorism (Watson)
    - Neobehaviorism (Hull)
    - Cognitive Behaviorism (Tolman)
    - Social Learning Theory (Bandura)
    - Radical Behaviorism (Skinner)

Basic Definitions

- Behavior: any _____ and _____activity of an organism.
- Learning: _____ permanent _____ of behavior that results from _____.
- Two fundamental learning processes
  - _____ Conditioning
  - _____ Conditioning

Historical Background

Philosopher	Plato	Aristotle
Approaches		
	Nature	Nurture

Notes on contemporary views on nature **vs.** nurture:

_____.

Figure 1. Sample pages of guided notes used in Psychology of Learning course.

Follow up exercises for you to bring for next class.

- Summarize what you learned today.

- Questions left unanswered. These may be doubts, confusions or follow up questions.

- To prepare for the quiz and the exam, complete Study Questions relevant to the topics covered today. These are questions 1-7 (p. 43).

For the theme labeled not helpful, answers that included the following keywords were included: not helpful, prefer to take my own notes, and detract from material. Forty-two out of 48 students (88%) wrote about the helpfulness of guided notes.

To evaluate the consistency of the themes, the three co-authors independently coded individual comments. The number 1 was used to classify comments under helpful, and a 0 for not helpful. If comments were omitted, no number was given. Agreement between codes was obtained by dividing the instances of agreement by the total number of comments. For the two sections of Psychology of Learning in which guided notes were used consistently, 100% agreement was obtained. Table 2 displays selected illustrative comments (with 100% agreement) for each theme, for each course examined.

Eighty-one percent of the students reported being very satisfied with the guided notes. Although this self-report evidence is valuable as it provides information on student perspectives, it did not capture the impact of guided notes on learning. To assess this, guided notes were used in class for a portion of a different course, that allowed to obtain measures of learning with and without use of guide notes in class. This time, the assessment of guided notes was extended to explore if there were negative influences of guided notes on the students' experiences during class.

Sensation and Perception: Partial Implementation

In the course Sensation and Perception (N= 24), organized in three parts, guided notes were used in class as hard copies, during the second part of the course. When guided notes were not used in class, they were available online for voluntary use. Toward the end of the course, 24 students completed the same two-item assessment described above. Results for the student ratings of level of satisfaction with guided notes are shown in Table 1. A binomial test comparing the average obtained ratings (M = 3.75, rating range = 1.00 - 5.00, SD = 1.29) with the midpoint of the scale, did not yield a statistically significant difference (p = 0.84, two-tailed).

After analyzing the open-ended item, 25% of students described the guided notes as helpful to study and focus during class, 21% considered

guided notes not helpful and preferred to take their own notes, and 36% did not answer this question. The rest of the students (18%) provided neutral answers with no identifiable preferences toward the use of guided notes. When co-authors independently coded individual comments, 88% agreement on the themes was obtained.

To further assess student perspectives on their experiences using guided notes, a modified version of the survey used by Chen et al. (2017) was used because it included options about positive and negative influences of guided notes. In line with the goal of the present reflection, it was important to explore the nuances and diversity of perspectives on guided notes. This survey was modified to include a fourth item about whether students preferred the use of guided notes or not in different portions of the course.

Results obtained with the more extensive assessment are presented in Table 3. The first three items in this assessment were as in Chen et al. (2017). These were items that yielded yes or no answers, followed by specific positive (Item 1) and negative (Item 2) influences of guided notes and benefits (Item 3). Following results displayed on Table 3, 75% of students selected positive influences of guided notes, 50% reported having experienced negative influences, 79% indicated that guided notes benefitted them on exam preparation, and 63% preferred the class unit with guided notes. The fourth item yielded 63% of students preferred the guided notes, while 29% preferred when the class was without guided notes, and 8% reported indifference.

Of particular interest is that six out of 24 students (25%) reported that guided notes had both positive and negative influences on their lecture experience. As shown in Table 3, for Item 1, 75% of students reported that guided notes had positive influences, and then for Item 2, 50% of students reported that guided notes had negative influences. Students who reported their level of satisfaction highly, wrote helpful and positive comments about their experience with guided notes. More specifically, 13 out of 24 students provided ratings of 4 and 5 on the Likert-type scale described above. From these 13 students, six provided positive comments and the remaining did not write comments. Eight out of 24 students rated their level of satisfaction with a 3 on the scale; three of

Table 3. Frequencies and Percent of Responses on the Modified Survey by Chen et al. (2017)

Items	N	%
1. Did the guided notes have positive influences on your lecture experience?		
No	6	25
Yes	18	75
If yes, what were the influences? (Check all that apply)		
I paid more attention to the lectures	13	54
I elaborated more on the lecture content	7	29
I discovered more main points	14	58
I had a better understanding of the lecture structure	14	58
I had a stronger motivation to read the textbook	2	8
I liked to listen to lectures more	6	25
I liked to take notes in lecture more	9	38
2. Did the guided notes have negative influences on your lecture experience?		
No	12	50
Yes	12	50
If yes, what were the influences? (Check all that apply)		
I was less likely to concentrate on lectures.	8	33
I had less time for comprehending the lectures.	5	21
I had less time to think over lecture content.	5	21
I was discouraged from reading the textbook.	3	13
I was less willing to take notes in class.	7	29
3. Did the guided notes have benefits on your exam preparation?		
No	5	21
Yes	19	79
If yes, they were helpful for… (Select all that apply)		
Recalling the lecture content.	13	54
Comprehending the content of the textbook.	8	33
Determining the main points of the lesson unit.	15	63
Identifying the structure of the lesson unit.	8	33
Facilitating textbook reading speed.	5	21
Capturing the main points of the exam.	16	67
Reducing exam preparation time.	10	42
4. Compared to the lectures for Unit 1 (Chapters 1, 2, 3) for which there no guided notes and Unit 2 (Chapters 4, 5, 6) for which there were guided notes provided by the instructor, did you prefer the lectures with the guided notes or without?		
With	15	63
Without	7	29
Indifferent	2	8

these students provided helpful comments, three negative comments, and two no comments. Three students rated their satisfaction with guided notes with the lowest score of the Likert-type scale and provided not helpful and negative comments (see Table 2).

An additional analysis was conducted to examine the effects of guided notes in the Sensation and Perception course on average quiz scores. This course included quizzes as assessments of learning. To compare quiz scores when the guided notes were used vs. when they were not used in

class, for each quiz, scores were averaged across students (N = 33) and then averaged for each part of the course. The average quiz score (out of a total of 100 points) for the first part was M = 73.27 (SD = 22.33), for the second, M = 83.85 (SD = 20.97), and for the third part M = 77.88 (SD = 21.14).

A one-way within subjects (or repeated measures) ANOVA was conducted to compare the effect of the use guided notes on average quiz scores in the three parts of the Sensation and Perception course. There was a significant effect of guided notes on average quiz scores, Wilks' Lamba = .79, F (2, 31) = 4.13, p = 0.03. Paired-sample t-tests were calculated to conduct post-hoc comparisons; there was a significant difference between the average quiz scores obtained in the first and the second parts, t(32) = -2.75, p = 0.01 (two-tailed). Although the average quiz scores for the third part decreased relative to the average quiz scores obtained during the second part, such difference was not significant, t(32) = 1.68, p = 0.10 (two tailed).

The more extensive survey allowed for a more detailed and focused exploration of negative influences of guided notes, rarely addressed in some of the literature reviewed. Of interest is that the same students who reported negative influences, also reported preferring the use of guided notes. The students who expressed (informally in class) not liking the guided notes, were encouraged to pursue their preferred strategy for note-taking. Given the diversity the reports on negative influences, even when guided notes were preferred, instead of making the use of guided notes part of the class activities, they were available for voluntary use in a later course.

Psychology of Learning: Electronic, Voluntary

Twenty-six students were introduced to optional guided notes during the second day of class. Such introduction consisted of a description of guided notes and the delivery of hard copies for students to use (voluntarily) during that day. Thereafter, guided notes for every chapter were available electronically.

Results obtained using the two-item assessment are presented in Table 1. A binomial test comparing the average obtained ratings (M = 3.96, rating range = 2.00 - 5.00, SD = 0.99) with the midpoint of the scale, did not yield a statistically significant difference (p = 0.17, two-tailed). The students who

rated their level of satisfaction with a 3 (27%) and 2 (27%) also wrote in the open-ended question that they have not used guided notes, not checked their availability online, and that they prefer to take their own notes (see Table 2). After analyzing these comments following the previously describe identified themes, 77% of students considered guided notes to be helpful. The obtained inter-rater agreement was 85%. Thirty-eight percent of the students reported being very satisfied with the guided notes but also reported that at times they did not remember to use them.

EVALUATION OF REASONS FOR THE PROBLEM: DISCUSSION OF ASSESSMENTS AND EXPERIENCE USING GUIDED NOTES

When guided notes were provided consistently as hard copies in class, students reported higher ratings of satisfaction than when they were used for a part of the course or when they were available electronically for voluntary use. It is possible that with consistent exposure and continuity, students may have learned to expect guided notes reliably as part of the course. When guided notes were used for a portion of the course, students still reported benefits on studying, but not as much on benefitting their lecture experience. When the guided notes were available online, some of the students reported that if the instructor brought the guided notes to class, that they would be more likely to remember to use them. It is possible that consistency and convenience were important factors in improving performance.

The results from the partial implementation during one portion of the course demonstrated that guided notes may have contributed to the increase in quiz scores, as found in undergraduate students by Glodowski and Thompson (2018), Neef et al. (2006), and Williams et al. (2012). Other factors though such as experience with the content and additional studying materials (e.g., additional study guides provided and review sessions) may have contributed to such effect, as guided notes are only one component of the instructional effort (Barbetta & Skaruppa, 1995).

Along with the three implementations of guided notes, other teaching strategies, such as class discussions, demonstrations, and videos, among others, could also have contributed to the results obtained. In addition, the history of each

individual student using guided notes, note-taking or any other studying strategy (e.g., note cards) could also be a confounding variable.

It is difficult to draw a direct comparison between the three modes of implementation of guided notes due to differences in course content and in the number of students in each course. More specifically, the Sensation and Perception course included more biology-based content than Psychology of Learning course. An interesting finding is that ratings between Psychology of Learning taught across different semesters are different.

For the three sections of Psychology of Learning, the assessment was shorter. Using a modified version of a survey by Chen et al. (2017), extended the assessment used in the Sensation and Perception class. When comparing the level of satisfaction between ratings in a Likert-type scale and written comments, students tended to be more positive (i.e., helpful) when providing written comments about their level of satisfaction. The more extensive assessment allowed for a more detailed examination of the perspective of students about the use of guided notes, including options of negative influences of guided notes.

In reflecting on these results and potential reasons for them, some of the positive impacts of guided notes presented in the literature as advantages of guided were confirmed. What rises as a novel finding are the negative aspects, or disadvantages, of the use of guided notes.

DECISION: ADVANTAGES AND DISADVANTAGES OF GUIDED NOTES

Consistent with previous research, some advantages of guided notes reported by students in the present study were allowing more time to engage in class. More specifically, students reported that guided notes provided the opportunity to listen to the instructor and to participate in discussions or other class activities, while not feeling that they have to take notes on everything (Chen et al., 2017; Twyman & Heward, 2018).

Active-student responding comprises teaching techniques, such as guided notes, that increase the probability of attending to relevant content of the course (Barkley, 2009; Twyman & Heward, 2018; Williams et al., 2012). Guided notes also provided support outside the classroom to prepare for in-class assessments of learning (Glodowski & Thompson,

2018; Neef et al., 2006). The use of guided notes as a study guide was also consistently found in the responses by students in all classes assessed in the present reflective practice.

Although guided notes are considered advantageous because of their low cost and efficiency (Twyman & Heward, 2018), instructor time cost should be considered. This technique involves careful lesson preparation, administration, time to check completion, and proper assessment. One advantage for the instructor is that guided notes allow for earlier preparation of classes and improvement in course preparation (Vargas, 2013).

One of the outcomes of this reflection guided by results from assessments is that guided notes in some cases may not be helpful for students. Chen et al. (2017) reported that key words missing in guided notes may overshadow the context in which they are embedded and may actually hinder the process of learning by reducing the meaning of concepts and ideas been taught. These authors proposed that the omitted words may become a simplified list of words that students may be seeking to write, rendering them passive as opposed to engaging in the process. This disadvantage was reflected in some comments (under the theme not helpful) made in some of the assessments described above (see Table 2).

To identify concerns with guided notes, it is valuable to evaluate reports of students using guided notes and to speak to students about their experiences and preferences. Some students did not find guided notes helpful, as reflected by comments about distraction or concerns about finding the missing word, rather than concentrating on the meaning. Some students also reported a preference for taking their own notes in lieu of using the guided notes. Different levels of skills in note-taking in the classroom may be an important factor to assess prior to implementation. One potential tool to assess note-taking and other related study skills is the Learning and Study Strategies Inventory (LASSI, by Weinstein, Palmer, & Acee, 2016). This inventory has been useful in assessment of studying skills in undergraduate students (Villareal & Martinez, 2018).

Bringing to light disadvantages of guided notes while considering the benefits reported by other students, suggests that teaching strategies used in the classroom should be more intentionally tailored to

individual students. To do this, a careful assessment of background skills and repeated assessments and check-ins in class may provide continuity of experiences and opportunities to shape the learning experience that best fits each student.

REFLECTIVE CRITIQUE: LESSONS LEARNED AND BEST PRACTICES

The mode of delivery of guided notes (consistent vs. partial) seems to matter. Although it is difficult to study guided notes in isolation from other teaching strategies, their assessment is still worth pursuing. Guided notes may not greatly impact studying strategies or performance in evaluations for some students given their histories with effective note-taking and studying strategies. At the same time, some students who reported adequate note-taking skills still appreciated the access to the use of guided notes during class and after class as studying materials. Although it is important to assess student satisfaction, it may at times not be key for learning.

Part of the process of reflection, following Rodgers (2002) on Dewey, is to generate steps for action, so based on the experiences and assessments of guided notes, some best practices on the use of guided notes in undergraduate instruction were derived for future refinements and implementations. Although these best practices are not exhaustive, they are meant to provide some useful guidelines for the preparation, implementation, and assessment of guided notes.

Instructions to Complete Guided Notes

The delivery of instructions to complete guided notes should be clear, consistent, and reminded frequently. In the administration of guided notes described above, it became clear that demonstrating how to use guided notes before using them is recommended to ensuring their accurate completion. Also, if available, projecting guided notes and completing guided notes with students as a form of instruction may provide clear communication of their goal and use, prior to having students completing them independently. In addition, providing a rationale and brief description of how guided notes contribute to note-taking and studying is also helpful in motivating students to complete them and use them for studying. Sharing the empirical evidence of guided notes with students may be a compelling way to motivate

them and to introduce the use of guide notes as part of a course (Barbetta & the Skaruppa, 1995). Also, there may be a variety of perspectives and backgrounds, so providing the choice to use guided notes and how to use them, may be most effective and empowering to students (Broom, 2015).

One of the experiences of the first author, after repeated use of guided notes in class as an instructor, is the awareness of how the completion of guide notes affects the pacing of the class. The instructor should take account that completion of guided notes happens at different times for students. Occasionally, after informal observations, it was noticed that some students communicated with one another to get the key words to fill in the blanks, while other students had finished. Although this may be seen as a distraction, it could be framed differently and utilized for development of collaborative groups in the classroom. Allowing time for completion and for discussion of guided notes, provides an opportunity for a more active classroom. This approach may minimize the disadvantage of the vacuous focus of filling in the blank while using guided notes.

Guided Notes are Not Just Fill-in-the-Blanks

Another lesson learned, and still in progress for the first author, is that crafting guided notes may take different forms. Such forms may be tailored to student needs, but also students can be involved in the crafting of guided notes. Most of the guided notes described in the present manuscript involved blank spaces for writing key words, and in a few instances these spaces were used to write definitions, questions, and opinions about topics covered in class. In addition, spaces for drawing or diagramming (as in Dye, 2000), and embedding other components, such as open-ended questions to promote discussion and dialogue between students, may be incorporated.

Observing students' completed guided notes with additional notes on the margins, use of colors, and diagrams, propelled creativity and collaboration in crafting of guided notes. This collaborative process builds community and involves students in the creation of the class. Other possible resources to include in guided notes are visual cues (e.g., photographs) and links to videos, if using guided notes in an electronic format. It is important to consider that the flexibility of guided

notes may vary, depending on whether they are implemented as hard copies or in electronic form.

Length of Guided Notes

As stated previously, one of the first steps in creating guided notes is to clearly specify course objectives (Barbetta & Skaruppa, 1995; Heward, 2001). To maximize the usefulness in achieving specified learning outcomes, guided notes should mirror such objectives, be focused, and be kept short. These characteristics also increase student motivation to complete the guided notes and may also alleviate issues with the pacing of the class, mentioned above. Short entries in guided notes may be most helpful during lectures in which students have to divide their attention between writing on guided notes and listening to the instructor. These short-entry guided notes (see Figure 1, p. 1) may also be most useful when students are expected to complete guided notes independently.

Longer-entry guided notes, in the form of defining a concept in the students' own words, as part of the guided notes, completing a diagram, may be used for completing guided notes in small groups (Figure 1, p. 4). Group-based completion of guided notes may contribute to promoting communication and discussion. This group-based type of guided notes may also contribute to promoting accountability across students. One set of guided notes may combine short and long entries for the same class that may have a short component of lecture as an introduction following a group activity. Students may also create their own set of guided notes as a group-based activity (Wright, n.d.).

These decisions on whether to create guided notes in groups are influenced by the time allotted for each class. While the Psychology of Learning courses were taught in 50-minute blocks, the Sensation and Perception course was taught in 110-minute blocks. In some cases, short-entry guided notes were used in short lectures to introduce discussions in the shorter classes. With more time for a course, long-entry guide notes were used in small-group work.

Verification of Completion and Accuracy

Verifying student completion of guided notes is one way to promote engagement. Points or other valuable and pertinent consequences (e.g., extra credit) may be provided for completion of guided notes. As mentioned before, according to some comments provided in some of the assessments,

students reported using guided notes to study. Review sessions to prepare for course evaluations of learning may be conducted and directed with guided notes. Having students tally the times that they have reviewed their notes may be one way to promote studying and to monitor studying (Wright, n.d.).

In addition to completion of guided notes, verification of accuracy is also important to ensure proper learning and use of appropriate terms for the course. Although ideal, this also is time consuming and may require resources such as a teaching team or assistance. In the first administration of guided notes presented in this paper, the instructor attempted to verify accurate completion, but it became clear that with the number of students in each class, there was not enough time to do so effectively. Instead, between-student verification was used intermittently to encourage student interaction. This also seemed to improve syncing the completion of guided notes across students and the pacing of the class.

If using guided notes to teach note-taking or to increase the quality of note-taking, after completion and accuracy have been verified and progress has been evidenced, it is recommended to fade the use of guided notes (Chen et al., 2017). The strategy of fading involves progressively increasing the blank spaces, so that less and less text is presented in the guided notes and students engage in more note-taking while attending to class.

Guided Notes as Study Guides

Several students reported using guided notes as study guides. As mentioned before, note-taking is one of the primary studying strategies identified by students (McDaniel, Howard, & Einstein, 2009). Studying is frequently invisible to the instructor as it tends to take place outside of class time. A constant concern of students who hold one or multiple jobs (and other responsibilities such as child and family care) while taking a full load of classes is not having enough time to study. This is, as mentioned before, one of the reasons why the first author decided on the use of guided notes to facilitate studying for students.

Creating and implementing classroom activities and assignments dedicated to studying in which both content and practice-related goals are fulfilled may contribute to student success. One such activity

could be the use of guided notes with focus on their contributions to studying. Completed guided notes may facilitate conducting review sessions in preparation for evaluations of learning.

Guided Notes as Accommodations

Another potential contribution and extension of the use of guided notes is for note-taking accommodations. The requests for accommodations in the classroom are growing fast at undergraduate institutions in the United States (Hadley, Hsu, Addison, & Talbot, 2019). One of these frequent accommodations requested by students is hiring students as note-taking aids. One way to accommodate this request at many universities is to hire an anonymous peer in the same classroom to take notes, submit them to a center on campus dedicated to providing such resources to students, and then making them accessible to the student who requested such service. To accommodate high number of requests, generating guided notes in class may be a way of providing such accommodation. Also, to reach diverse learners, different versions of guided notes can be tailored with varying writing requirements.

CONCLUSIONS

Guided notes are more than just fill-in-the-blanks. The pedagogical aids can be tailored to student needs, beyond K-12 education and special education. Guided notes are versatile and flexible, and they may promote an inclusive and collaborative environment. Ongoing scholarship of teaching and learning by means of reflection, relevant data and literature, on the mode of administration of guided notes, and on student perspectives and learning, is essential to evaluate the varied impact of teaching strategies used in the classroom. Although summary measures (e.g., percentages, averages) are frequently used to assess effectiveness of teaching practices, more nuanced and critical analyses are necessary to better capture student experiences and to address diversity of student needs, to ultimately generate a positive impact for all. Such critical analyses are useful in guiding necessary modifications of such strategies to adapt to students' needs and promote learning and success.

Although assessments as the ones used in this reflective practice are helpful, they should be viewed critically. Student needs and backgrounds are shifting, and it is imperative to adapt pedagogical strategies and accompanying assessments. It is critical to go beyond these assessments and listen to students' voices. It is important to provide opportunities to for students offer feedback about specific aspects of the class and to employ such feedback to co-create the learning experience. Although revision and renewal of teaching through reflective practices takes time, it is a worthwhile to aim at providing an enriching learning experience.

Some of the attitudes for reflection such as whole-heartedness, directness, open-mindedness, responsibility, and readiness bring awareness and benefit not only the process of reflection on teaching, but to the act of teaching (Rodgers, 2002). These attitudes are guidelines to remind us that teaching and learning are in constant flux, and that as such, our strategies and assessments should be revised with careful consideration of shifting students' needs.

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