

Quiet Students' Experiences with the Physical, Pedagogical, and Psychosocial Aspects of the Classroom Environment

Ann Medaille & Janet Usinger

University of Nevada, Reno

Abstract: *The classroom environment can be highly social, a situation which may prove challenging for students with quiet tendencies. This qualitative study focused on the perceptions of 10 self-identified quiet college students through an analysis of their first-hand accounts of their experiences in postsecondary classrooms. This study found three major themes: (1) attempting to minimize noise, interactions, and distractions, (2) struggling to outwardly express engagement, and (3) fear of social judgment. This study suggests that quiet students may be deeply affected by the physical, pedagogical, and psychosocial aspects of classroom environments. Thus, instructors may need to give attention to ways that they can adjust the classroom environment to help quiet students learn at their best.*

Key Words: quiet students, higher education, classroom environment, learning spaces

The classroom environment can have a significant effect on student achievement and students' attitudes toward learning (Fraser, 2012, 2014). For example, differences exist in the ways that students learn in traditional classroom spaces versus active learning classrooms, the latter of which often contain flexible, small group seating and various technological capabilities (Brooks, 2012). However, the classroom environment consists of much more than the mere physical design, furniture layout, and technological resources available. In addition to these physical aspects, the classroom environment also entails the psychosocial aspects of the classroom environment and the pedagogical milieu in which students learn (Fraser, 2012, 2014; Miller, 2009). Thus, the full classroom learning environment can have a strong impact on the extent to which learning occurs.

Quiet students' responses to their classroom learning environments may be different from those of more talkative students. The postsecondary classroom environment can be an inherently social one, with students required to give class presentations, participate in group projects, and contribute to class discussions. While many students enjoy an interactive academic environment and find that it enhances their learning, quieter students may prefer more solitary learning activities (Cain, 2012; Hopper, 2003; MacFarlane, 2014; Senechal, 2012). In fact, quiet students' less vocal participation in these classroom environments may be widely misunderstood. For example, in a discussion of classroom-based pedagogies of engagement, Smith, Sheppard, Johnson, and Johnson (2005) asserted that "Silent students are uninvolved students who are certainly not contributing to the learning of others and may not be contributing to their own learning" (p. 95). Are quiet students truly uninvolved? Or do they simply respond to their learning environments in different ways?

This study examined the experiences of self-identified quiet undergraduate students in postsecondary classroom environments. Through a series of interviews with and reflections by quiet college students from a variety of majors, this study focused on how students perceived that classroom environments facilitated or detracted from their learning. By using students' first-hand accounts of their own experiences, this study sought to provide a fuller picture of the effect that the physical, pedagogical, and psychosocial classroom environment had on how quiet students perceive their own learning.

LITERATURE REVIEW

Quiet students are those who have a low willingness or predisposition to communicate with others (McCroskey & Richmond, 1998). Students may be quiet in their classes for any number of reasons. Some students have fixed traits that incline them to be naturally quiet in social situations. Others have learned to behave in a quiet manner; for example, certain cultures reinforce some types of quiet behaviors. Finally, some students are uncomfortable in particular classroom situations and choose to respond with silence (Medaille & Usinger, 2019).

Bronfenbrenner's ecological systems theory provides some insight into the ways that quiet students may be affected by classroom environments. In this theory Bronfenbrenner (1979) emphasized that learning and development must be understood within different sociocultural contexts, and he identified distinct but overlapping systems that influence the ways that children develop. This theory has been influential in prompting educators to study learners not in isolation but in the larger context of their learning environments, of which classrooms are one kind (Hayes, O'Toole, & Halpenny, 2017; Miller, 2009). Research has found that quiet students respond in distinct ways to various aspects of the classroom environment, which include physical, pedagogical, and psychosocial dimensions (Fraser, 2012; Miller, 2009).

THE PHYSICAL CLASSROOM ENVIRONMENT

The physical classroom environment can include elements such as the seating arrangement, the class size and composition, and the classroom management techniques used by the instructor (Miller, 2009). Quiet students may respond to the physical classroom environment by choosing seats in a classroom that minimize the chances that they will be called upon to speak, such as sitting toward the back or along the sides of the room. When participating in small groups, quiet students often choose to sit off to the side to avoid drawing attention to themselves (Richmond, 2009; Richmond et al., 2013). Quiet students may also have difficulty focusing in unruly, noisy, or poorly managed classrooms (Barker, 2011). The research differs as to whether quiet postsecondary students prefer large lecture-type classes in which they can listen more and talk less, or small-sized classes in which they may feel more comfortable but where there is a greater expectation that they will have to discuss and interact with others students (Barker, 2011; Richmond, 2009; Richmond et al., 2013).

THE PEDAGOGICAL CLASSROOM ENVIRONMENT

The pedagogical classroom environment relates to instructional choices and teacher characteristics and behaviors (Fraser, 2012; Miller, 2009). Students may respond to the pedagogical environment with silence because they prefer to listen, reflect, and/or pay attention in order to learn (Barker, 2011; Reda, 2009; Townsend, 1998). Quiet students may need silent time for reflection or writing in order to work through their ideas before speaking them aloud (Barker,

2011; Schultz, 2009; Townsend, 1998). In some cases students may be silent because they choose to work independently, because they want to remain in control of their own learning, because they wish to work at their own pace, or because they wish to engage in their own imaginative or creative thoughts (Barker, 2011; Schultz, 2009, 2010). Some students simply find solitary work to be more satisfying than speaking with others or feel that they perform best when learning in silence (Barker, 2011).

The pedagogical classroom environment may have an effect upon quiet students' performance, especially if spoken participation, such as oral presentations, are a substantial part of the grade. Quiet students may rarely raise their hands or volunteer to speak, even if expected to do so (Richmond, 2009; Richmond et al., 2013). The reasons for this may vary; some students may choose to remain silent because they lack confidence in the material or feel confused by their instructors' expectations (Reda, 2009). Quiet students may rarely respond to questions in class that are posed by an instructor, even when they know the correct answer, and they less frequently ask for help when they need it. They may also drop classes if they learn that a large percentage of the course grade comes from some aspect of spoken participation (Richmond, 2009; Richmond et al., 2013).

When placed into small groups, quiet students tend to speak less than other students. They may become distracted by the communication demands of the group which may cause them to be less active participants. When they do speak, they often express agreement with the opinions of other students whether or not they actually agree (Richmond, 2009; Richmond et al., 2013).

THE PSYCHOSOCIAL CLASSROOM ENVIRONMENT

The psychosocial classroom environment can include elements such as the way students and teachers interact, the relational aspects of class participation, the degree to which students feel socially supported, and the extent to which instructors emphasize learning and growth (i.e., mastery objectives) over ego and competition (i.e., performance objectives) (Miller, 2009). Quiet students' reactions to the psychosocial aspects of the classroom environment often involve their relationships with instructors and other students. Some students are less likely to talk because they fear the judgment of their peers; they may be more likely to talk if they know other students in the class (Barker, 2011; Reda, 2009). Some quiet students may dislike other students or their teachers (Townsend, 1998); some may be quiet because they fear entering into conflict with others (Barker, 2011). Students may also use silence to assert, construct, negotiate, and renegotiate their identities with others (Jin, 2017; Schultz, 2009, 2010). Some students may be quiet because they feel socially alienated (Richmond et al., 2013) while others may want to avoid appearing vulnerable (Schultz, 2009, 2010). Some may also choose silence as a response to the power of their teachers or schools; thus, they may be quiet either as a way to avoid attracting attention to themselves or as a way of performing resistance to these power structures (Hao, 2010; Thompson & Bell, 2010).

Culture may also play a role in the psychosocial classroom environment. Quiet students may be culturally, ethnically, or linguistically divergent from the majority (Frambach, Dreissen, Beh, & van der Vleuten, 2014; Remedios, Clarke, & Hawthorne, 2008; Schultz, 2009, 2010). Some quiet students come from cultures that place a greater emphasis on the role of silence in learning or cultivate different attitudes toward speaking in formal learning situations (Hao, 2010). For example, in a study of postsecondary students from different cultures, Frambach et al. (2014) found that students had different approaches to speaking aloud, challenging others, and asking questions on the basis of cultural values such as attitudes toward tradition, competition, and hierarchical relations. Some quiet students come from cultures in which silence indicates respect for others,

while other students may be quiet because they are learning how to speak in a new culture (Schultz, 2009, 2010). At the postsecondary level, some quiet students may feel disconnected from the academic culture. Some students may be quiet because they do not know how to speak in an appropriately academic voice and have difficulty adjusting to the unspoken rules of college participation (Reda, 2009).

PURPOSE OF THE STUDY

Several research studies have observed the ways that quiet students respond to the classroom environment and have sought explanations for these behaviors. However, few of these studies are focused on postsecondary students. In addition, studies of quiet students have generally tended to mention aspects of the learning environment as a side note without providing a holistic view of this issue. Thus, a fuller picture is needed of the extent to which the classroom environment affects the ways that postsecondary students perceive their own learning. While prior research shows that quiet students experience the classroom in ways that are different from their more talkative peers, it is not always clear how the classroom environment affects their learning and what, if anything, instructors can do about it. Thus, this study sought to learn about the classroom learning experiences of quiet students from their own points of view.

METHOD

The study presented is part of a larger phenomenological study that examined the experiences of quiet college students in collaborative learning situations; the current study provides insight into their perceptions about college classes in general. Specifically, the research presented answers the question, How do self-identified quiet undergraduate students understand how the postsecondary classroom environment affects their learning?

A phenomenological research design was chosen for several reasons. Phenomenological research can help to challenge assumptions about the lived experience of learning and provide insights into aspects of learning that are not quantifiable. For this study, phenomenology allowed quiet students to reflect upon their experiences shortly after they occurred. The research design also provided a more intimate approach to data collection whereby quiet students could share their experiences and perceptions one-on-one with the researcher in their own voice (Moustakas, 1994; van Manen, 1990).

PARTICIPANTS

The research was conducted at a mid-sized state university in the western United States. Ten full-time, upper-division (third or fourth year) college students agreed to be part of the study. Upper-division students were selected because they have had more experience with college-level coursework and because it was thought that they may have possessed a greater understanding of themselves as quiet learners. All participants were born and raised in the United States.

Students were recruited from a variety of colleges and majors. Instructors from nine classes allowed the first author the first fifteen minutes of a class period to recruit students. Following a description of the study, all students in the class were asked to complete the Personal Report of Communication Apprehension (PRCA-24). The PRCA is a 24-item questionnaire designed to measure communication apprehension in four different settings: dyads, small groups, large groups, and public speaking (McCroskey, 2009). The PRCA-24 was not used as a screening mechanism but was rather used to assist students in making their own determination about whether they are

quiet, since students who have higher levels of communication apprehension tend to be quiet (Richmond et al., 2013). After the questionnaires were completed, students were asked to write their name and contact information on the back of the PRCA-24 scoring sheet if they felt they were quiet and were interested in participating in the study.

The first author contacted interested students who scored a minimum of 80 on the PRCA-24, indicating a higher level of communication apprehension, and agreed to be part of the study. As students were contacted, consideration was given to enrolling students who represented a variety of disciplines and genders. For instance, once a student studying journalism was enrolled, other journalism students were not sought. The first author met briefly with each of the students to review the study procedure and consent form, to check that they did indeed self-identify as quiet students, and to confirm their interest in participating in the study. The recruitment process took approximately one month of discussions with potential participants. Students from a wide variety of majors were enrolled in the study. Students were equally divided between juniors and seniors; more females were included than males; all students were between the ages of 18–25 with the exception of one. The list of participants is included in Table 1.

Table 1.

Study Participants

Major	Gender	Status in school	Age range
Art & Sociology	F	Senior	18–25
Computer Science	M	Junior	35–40
Secondary Education	F	Junior	18–25
Community Health Sciences	F	Junior	18–25
French & Psychology	F	Senior	18–25
Journalism	M	Senior	18–25
Mathematics	M	Junior	18–25
Nursing	F	Senior	18–25
Psychology & Art	F	Senior	18–25
Theatre (Stage Management)	F	Junior	18–25

DATA SOURCES AND COLLECTION

Two data sources were used in this study: interviews and reflections. Three interviews were conducted with each student at the beginning, middle, and end of a single semester. The first interview was designed to get to know the students and explore why they considered themselves to be quiet in general as well as in classroom situations. These first set of questions focused on students' understandings of themselves as quiet people, their participation in classes, where they sat in classes, how they interacted with others in classes, how they preferred to learn in both formal classrooms and informal learning settings, and how they interacted in collaborative learning situations. The second interview was focused on collaborative learning (the focus of the larger study; see Medaille & Usinger, 2020). This interview included questions about students' participation in different types of collaborative learning situations that they were experiencing in their courses, their participation in these situations both within and outside of formal classroom spaces, how they responded to these situations, and what they learned from these situations. The third interview at the end of the semester was centered on inviting students to reflect on how their class experiences during that semester had contributed to their learning. This final interview included questions about how their collaborative learning assignments concluded, their favorite

and least enjoyable learning experiences from the past semester, how they learned with other people over the semester, how they participated in their classes over the semester, and how they best liked to learn overall.

To ensure both privacy and a sense of solitude, interviews were conducted individually in a small group study room in the campus library or student achievement center, depending upon the preference of the student. Interviews lasted between 30–75 minutes, with most being approximately one hour. All interviews were audio-recorded for later verbatim transcription.

The second data source was reflections by each student as they completed a collaborative learning experience. Students were asked to respond to the following prompt: *Soon after participating in a group activity for a class, write a few thoughts about what it was like. What did you do? What did you like? What didn't you like?* These data were not explicitly analyzed for the study presented but provided additional insight about the student's learning preferences. Reflections were captured by short text messages or emails and sent to the first author, or were handwritten on paper and brought to the interviews. A prompt for reflections was reviewed during the first and second interviews and given to the students on paper, and reminders about the reflection prompts were sent to students via email in the middle of the semester.

DATA ANALYSIS

Consistent with phenomenological research (Moustakas, 1994; van Manen, 1990), data analysis began during data collection. Memos were written following each interview about overall perceptions about the students and the responses provided during the interview. Interviews and reflections were carefully reviewed prior to the subsequent interview.

NVivo 11™ software was used to facilitate the process of coding and analysis. It was clear during the initial phase of data analysis that how students experienced the college classroom in general was both distinct and critical to how they experienced collaborative learning. Because of this distinction, careful attention was paid to their experiences in the classroom, the focus of the study presented.

Close reading of the transcripts resulted in the identification of four general themes: actual navigation of a classroom; meeting instructors' expectations; feelings of being judged in the classroom; and personal perceptions of being a quiet student. All transcripts and reflections were coded according to the preliminary themes. As coded sections were examined, themes were adjusted and subthemes were identified. Detailed descriptions of each theme were then created using the participants' own language. Throughout the analytic process, extensive memos were written about the emerging themes and additional researcher reflections about each student.

Finally, a descriptive summary of students' experiences was shared with the participants during the third interview as a form of member-checking to confirm whether the descriptions were consistent with their understanding of their experiences. In the final analytic phase, the second author was brought into the process to check for accuracy and bias. The final focused coding allowed for synthesis and explanation of the data.

RESULTS

Three themes emerged regarding quiet students' learning experiences in relation to the physical, pedagogical, and psychosocial aspects of postsecondary classrooms: (1) attempts to minimize noise, interaction, and distractions, (2) struggles to outwardly express engagement, and (3) fear of social judgment.

PHYSICAL ASPECTS: ATTEMPTING TO MINIMIZE NOISE, INTERACTION, AND DISTRACTIONS

Participants' quiet communication patterns influenced their experiences from the moment they walked into a classroom on the first day of classes; each made choices about how to minimize noise, interaction, and distractions within their environments. A few participants indicated sending non-verbal signals to other classmates that they preferred not to engage in conversation when they entered a classroom. For example, the journalism student preferred to walk into class wearing headphones and sit "in the corner or in the back." He then engaged in "doing my homework or I'll be reading my textbook or just a book that I'm reading for my own enjoyment" to portray the impression that "I'm not really inclined to talk with anybody else." The art/sociology student often found the classroom to be too noisy as students were arriving, so she preferred to wait near the door until class was about to begin and things got quieter, at which point she took her seat. She frequently wore her headphones around other students "because if you have headphones on people don't talk to you."

Five participants described how they chose seats in a classroom that helped them minimize noise, interactions, and distractions. For example, the art/sociology student described how, "I have to sit in the front near the center because I'm easily distracted by noises. . . . It's easier to ignore them if they're behind me rather than in front of me." The health sciences student liked to sit "towards the front, but in a corner where no one can sit next to me on one side" to maximize her focus but minimize her interactions with other students. However, while the psychology/art student liked to sit in the front to minimize distractions, her seating preference had to be sacrificed if it forced her to walk in front of other students and draw unwanted attention to herself. She described how "If the door is at the front of the room, then I'll sit right there. But if it comes in towards the back of the room . . . then I sit in the back because I don't like walking past all the people to get to the front."

Four participants complained about the excessive noise in their classroom environments and the difficulty of focusing under these circumstances. The math student described the "constant chatter" in a large-lecture class: "You can't concentrate at all. I honestly have skipped a class before because I just don't see a point sometimes because it's like how close do you have to sit to hear anything? . . . It actually drives me nuts." The computer science student described feeling distracted when an instructor asked students to work in groups to solve complex math problems in a noisy classroom: "There's so much noise going on. It's just that everybody talking made it even more difficult for me to do the problems in the first place. . . . If I focus enough, I can tune out everything but it takes more mental energy." He described another occasion when he was distracted by the whispers of nearby students: "I cannot hear what the teacher is saying when there's this psspspsps in my ear the whole time."

All 10 participants described how they needed to study for their classes in quiet environments that allowed them to focus. Five participants described how they studied at home because they found their home environments to be quiet, comfortable, and less distracting than places on campus. The math student described how he found it difficult to study on such a busy campus: "There are too many distractions on campus. And there are all of these restaurants . . . and coffee shops and the courtyards. . . . So I study at home." In contrast, some participants liked to study in quiet places in the library or other quiet spots on campus because they found their home environments to be too distracting due to the presence of roommates, pets, and family members. All participants typically preferred to study by themselves. Nevertheless, they did on occasion

choose to study with others, and they sometimes found it comforting or helpful to share their experiences or ask questions of other students.

Thus, quiet students often found the postsecondary classroom to be one filled with distractions. They often made choices within the physical classroom about how to maintain their focus within a noisy, busy environment.

PEDAGOGICAL ASPECTS: STRUGGLING TO OUTWARDLY EXPRESS ENGAGEMENT

Nine participants in this study found it difficult to meet their instructors' expectations for how students should participate in classes. They were often uncomfortable with speaking aloud in the classroom setting and reported infrequently raising their hands to respond. The nursing student explained, "They ask us to participate and that's always really hard. I'll do the required work but it's always hard for me to raise my hand." These expectations for speaking aloud were a source of tension and unease for many participants. Even when they were certain that they knew the correct answers, they often preferred to stay silent. This reluctance to answer questions asked by instructors also extended to asking questions of their own. However, they would speak out in class if an instructor called on them by name or if they were required to participate in small group discussion.

When required to participate vocally in class, nine participants described needing time to craft their responses before speaking aloud, and they felt uncomfortable with having to respond immediately to an instructor's question. The education student explained, "When I speak [in class] I plan out what I want to say. And I make little outlines, almost like little notes that can help guide me before I speak." Participants preferred not to speak if they did not have adequate time to fully develop their thoughts. The math student described how he often did not speak in his classes because he needed time to think about what he was learning: "Sometimes it's just new information doesn't always set in that fast and you're trying to piece it together in your own head. You're trying to connect it with old information and new information."

Throughout this study, participants expressed the belief that instructors misread their silence for a lack of engagement or interest in the course and a failure to master the course content. Participants believed that instructors often used strategies and assignments to create a pedagogical environment that emphasized group work, presentations, class discussions, and social interaction, particularly in smaller classes. The journalism student felt that his instructors were "more compelled to gear the class work and the group work to the more outgoing people rather than the shy people," explaining that "a lot of course work is not very directed towards people who like to work by themselves or who are very quiet." Many students described having to constantly work on group projects, which they sometimes approached with feelings of dread or other negative emotions. Most preferred to work independently, and several described the enjoyment they derived from the process of independent discovery.

Six participants believed that their instructors had negative perceptions of quiet students. They felt that their instructors thought that they may have been less engaged in the course material because they were quiet, or that their quietness indicated that they were "lazy," "rude," "disrespectful," "sad," "mean," "defective," "abused," or "different." The journalism student thought that quiet students are often perceived as having problems: "Professors and I guess people in general view that as a bad thing. Like if you're shy or quiet you have something to hide or you don't want to participate or you didn't do the reading or you didn't do the homework." The health sciences student wished her instructors had a better understanding of quiet students: "I feel like professors could just be a little bit more considerate about someone who's introverted. Just because

they're quiet doesn't mean they don't want to participate in class and they're not interested in the class. They're just quiet."

Seven participants perceived that many instructors create environments that favor talkative students in their moderation of classroom discussion. Some participants believed that instructors did not know how to control or often neglected to "rein in" very talkative students who tended to dominate discussions. A few participants described talkative students as being "obnoxious" or allowed to take "center stage." The math student believed that instructors tended to like outgoing students because they were outgoing themselves and judged a successful class in terms of having lots of dialogue: "I think a lot of teachers get into teaching thinking of that ideal student. They have a classroom of people with their hands up and there's a lot of back and forth." The computer science student felt that there was tension in classes between the learning needs of talkative and quiet students: "If it's something really difficult, I want to be able to think about it a long time in my head, and I feel like there can be a conflict between the people who need to talk about it and the people who need to think about it." Participants felt that the tendency of many instructors to foster a social environment detracted from their own learning.

Participants preferred to express their engagement in classes through ways other than speaking aloud; instead, they preferred to listen, observe, write out their thoughts, or take notes. Most participants described how they enjoyed listening to instructors' lectures, and many believed that in the current academic environment, instructors often felt pressure to minimize lectures and use more interactive teaching strategies. A few students described maintaining an active inner dialogue in response to the presentation of new material in classes. These students often tried to show their instructors that they were engaged when listening to lectures by looking attentive and nodding their heads. Several participants also enjoyed their instructors' use of web applications that allowed them to respond anonymously to questions by using a smartphone or laptop and see an aggregation of other students' responses without having to speak aloud. Many participants voiced a preference for communicating in writing. This extended to online class discussion boards, where in the words of the health sciences student, "it's just me and the computer" and where they did not have the added pressure of social attention.

In conclusion, many participants felt that the environment created in their classes was tailored to talkative students. Many also felt that their instructors viewed them as being less engaged in the course material than outgoing students. Most felt that instructors asked for responses from them at too fast a pace and wanted time to prepare their answers. Finally, most participants enjoyed the process of independent discovery and they preferred to participate in classes in ways other than speaking, such as through listening, observing, writing, taking notes, or using technology.

PSYCHOSOCIAL ASPECTS: FEAR OF SOCIAL JUDGMENT

Five participants described how the immediate social pressure of the classroom environment made them less inclined to speak out. These students felt that it was more difficult to formulate an appropriate response aloud while other students were paying attention to them. The health sciences student explained that, "I just get nervous trying to come up with something good to say off the top of my head while everyone is just staring at me." Many participants commented that a fear of looking "stupid" or "dumb" often motivated them to refrain from speaking. The journalism student explained that he was "really scared of that fear and embarrassment of saying the wrong thing in class." The theatre student described how she worried that she would stutter when she spoke aloud, which often made her forget what she wanted to say: "It's weird because

it's like I overthink it too much. . . . I'm like 'Oh, how am I going to say this so people understand me,' because . . . I have to prepare what I'm going to say so that I don't stutter as much." These students most often dealt with this social pressure by refraining from participating in class discussion if possible.

For six participants, speaking in front of others was even more difficult because they felt as if their bodies turned against them. The psychology/art student described having a strong physical reaction to the idea of speaking up: "I do wish I was more outspoken and I have tried to be. It's just that mentally I feel like 'I'm OK, you're fine, you could do this.' But then physically my body always just reacts in a way that's like, 'OK, you're not OK with this.'" The education student also described speaking aloud in class in terms of a physical reaction: "My heart starts racing and it's like an adrenaline rush." Many students felt that if they were called on to speak in class, then they turned red, stuttered, or had a shaky voice, which increased their feelings of embarrassment and discomfort. The psychology/art student said, "Once I start talking, I get choked up and I feel myself turn very hot and uncomfortable, and my voice gets really small and shaky."

Giving presentations in front of the other students posed a special problem for seven participants. Their reactions ranged from feeling "awkward," and "stressed" to feeling that giving presentations was "really scary" and "nerve wracking." Several described feeling out of control, and they worried about how they would appear to others. The nursing student disliked presentations because "I get up in front of the class and I freeze. Everything I know leaves. I don't know what to say." A few students described their reactions to giving presentations in terms of having panicked feelings, red faces, or shaky voices or bodies. The French/psychology student felt that "It never goes well. I panic the whole time. And then I stutter." The sociology/art student described experiencing panic attacks that involved "hyperventilating and dizziness and sometimes crying."

Despite their need to minimize social interactions, participants were not averse to talking with other students in their classes. A few participants described how they felt most comfortable interacting with students who were also quiet. For example, the education student described how she frequently strategized about how to sit next to other quiet students on the first day of classes: "I just kind of walk into the classroom that first day kind of late and see where there's only one or two people sitting at a table, and that's the table I join." In addition, some participants described having satisfying experiences when outgoing students in their classes initiated conversations or friendships with them.

In summary, instructors' expectations for speaking aloud in the classroom environment served as a source of discomfort for the participants in this study. Although they were not inherently anti-social, students reported feeling social pressure, embarrassment, fear of being judged, or a lack of control when they tried to speak up, as if their bodies had turned against them.

DISCUSSION

This study found that quiet students reacted in distinct ways to the physical, pedagogical, and psychosocial aspects of the classroom environment, and they perceived that these reactions had a significant impact on their learning. Perhaps the most salient finding of this study concerns quiet students' reactions to the physical classroom environment. This study found that participants exerted considerable mental effort to cope with various aspects of their physical classroom environments and maintain focus on their own learning. Consistent with previous work (Barker, 2011), this study found that students experienced difficulties with excessive classroom noise,

which often detracted from their ability to focus on their learning. Unlike previous studies, however, this study found that quiet students could be greatly affected by the physical layout of the classroom itself, such as the presence of the door, the types of seating available, or a student's proximity to others. Quiet students made deliberate choices about how to move about within the classroom and where to sit so as to maintain their focus, minimize interaction, and maximize their learning. This study also differed from prior literature (Richmond, 2009; Richmond et al., 2013) in finding that quiet students were not necessarily inclined to hide in the back of the classroom, suggesting a greater interest in avoiding interaction than in learning; instead, these participants often chose seats toward the front of the classroom to help them focus, which demonstrated a commitment to learning.

Participants' responses to the pedagogical classroom environment were unsurprising. The interactive nature of many pedagogical strategies in postsecondary classrooms posed difficulties for these quiet students. Quiet students were uncomfortable with speaking aloud in their classes and experienced stress in response to group work and other interactive pedagogical methods, a finding which is consistent with previous literature (e.g., Richmond, 2009; Richmond et al., 2013). Also consistent with previous work, this study found that quiet students perceived that their reluctance to engage in spoken participation was at least partially connected to the lack of time that they were given to prepare their responses (Barker, 2011; Schultz, 2009, Townsend, 1998). They were aware that instructors used pedagogical methods better suited to students who are comfortable speaking aloud without time for preparation. Quiet students sensed that the pedagogical tendency to equate learning with speaking aloud did not accurately represent all students' mastery of course material, and they struggled to show that they were engaged and interested. In addition, they generally preferred to learn in a solitary manner and enjoyed the pleasures that came from independent discovery.

Finally, this study also showed that quiet students were also deeply affected by the psychosocial aspects of the classroom environment, which often served to detract from their learning. Whereas other studies found that identity negotiation was a factor in students' choice to be silent (Jin 2017; Schultz, 2009, 2010), this element did not appear in this study. Consistent with previous work (Barker, 2011; Reda, 2009), however, this study found that fear of social judgment had a strong influence on quiet students' decisions to avoid speaking aloud. If classroom discussions and class presentations form a critical part of an instructor's pedagogical strategy, then the learning of quiet students may be deeply affected. If quiet students are unable or unwilling to participate fully in these types of social learning activities due to a strong fear of social judgment, then they may not learn as much or as well as their instructors intend.

Of note, students' choices to interact with others or speak aloud in the classroom were determined not only by their actual experiences but also by their anticipated experiences. While participants did not appear to be socially isolated and even reported times when they enjoyed interacting with other students, they felt an excessive amount of social pressure. The strong physical reactions described by these students in response to the prospect of speaking aloud suggests that they suffered from deep anxieties about the social aspect of the classroom culture. However, this social pressure appears to have been at least somewhat abstract. Their difficulties with speaking aloud were connected to the gaze of other students, whether real or imagined. They anticipated that other students might judge them negatively for what they had to say and therefore they demonstrated a tendency to remain quiet. While talkative students may also fear social judgment in their classes, these feelings may be elevated in quiet students. Thus, the social nature

of classroom learning—both real and anticipated—resulted in the potential for quiet students to experience elevated levels of stress.

IMPLICATIONS FOR PRACTICE

Given that quiet students experienced challenges with the physical, pedagogical, and psychosocial classroom environment, what can instructors do to help these students succeed? There are certain aspects of the classroom environment that are not within instructors' control, such as the rooms in which they are assigned to teach, the acoustics within the rooms, or the placement of furniture. But instructors can make some choices about the classroom environment that can help quiet students learn at their best. First, they can make attempts to respond to those aspects of the physical environment that are within their control, such as the noise level within the classroom. Students in this study explicitly stated that excessive chatter and noise detracted from their ability to focus on the material being presented. Establishing and enforcing norms for how students contribute in the classroom is well within the purview of the instructor.

Second, instructors can embrace methods of showing engagement and participation other than speaking aloud—such as writing, taking notes, listening, and using technologies—and incorporate these other methods into their course structure. When students are expected to contribute verbally, time can be given to allow students to compose their thoughts and ideas prior to presenting them. For instance, an instructor can ask students to take a few minutes to think about the response to a question or idea prior to responding. This is particularly valuable for more complex questions/ideas that do not have a single answer.

Third and perhaps most important, instructors can ensure that the pedagogical strategies used and assignments given represent the best ways for students to learn and demonstrate their mastery of course content. For instance, when is a spoken presentation more appropriate than a written paper? When is a group assignment more appropriate than an individual assignment?

In summary, for postsecondary instructors, course content is of utmost importance. However, for effective learning to occur, consideration must be given to the social setting of the classroom. Attention to seating arrangements, the ways that class discussions are conducted, and the usefulness of specific assignments will allow students to focus on mastering the course content. By considering these aspects of the classroom environment, instructors may help quiet students have more positive learning experiences.

CONCLUSION AND FUTURE RESEARCH

This study found that quiet students experienced numerous challenges with navigating the postsecondary classroom environment. They made efforts to minimize noise, social interaction, and distractions so as to better maintain their focus on the course content. They worried about the judgment of their peers and found it challenging to meet their instructors' expectations for speaking aloud in the classroom. They struggled to demonstrate their engagement in courses and their mastery of course content in a pedagogical environment that emphasized interactivity. Because the quiet characteristics of many students are related to fixed traits and learned behaviors and therefore not easily changed, postsecondary instructors should seek to accommodate these students so as to maximize their learning potential. By considering how features of the physical, pedagogical, and psychosocial classroom environment may detract from the learning of quiet students, instructors can make adjustments that allow quiet students to learn more and learn better.

This study suggests several directions for future research. Because this study was conducted with a small sample size, future studies could seek to replicate the results discovered here with larger samples. Studies that use a quantitative approach could be particularly helpful in illuminating the extent to which these findings can be generalized, which can in turn provide a basis for which to explore changes in pedagogical strategies at the postsecondary level.

This study indicated that the physical environment had a significant effect on the learning of quiet students, but more work is needed to specifically determine which features have the greatest impact on quiet students. More work can also be conducted to determine the impact that different physical arrangements of classrooms and other learning spaces have on quiet students of different ages, including the experiences of both children and adults in both formal and informal learning contexts.

Finally, whereas this study focused on quiet students' perceptions of the classroom environment, a similar study of instructors' perceptions would be of value. For instance, a study could explore how instructors reconcile a desire for interactivity and the social construction of knowledge with personal mastery of course content often demonstrated through individual effort.

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