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MOTIVATION AND SOCIAL PROCESSES

## Student Perceptions of Autonomy-Supportive Instructional Interactions in the Middle Grades

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### ABSTRACT

Autonomy support in classrooms is believed to coordinate students' inner motivational resources in ways that enhance student engagement (e.g., Jang, Kim, & Reeve, 2012). Yet, to our knowledge, no study has investigated student-generated interpretations of the motivational significance of their teachers' autonomy-supportive practices. Interpretations gathered from students' responses to video clips of their own teacher were studied with a diverse sample of students ( $N = 59$ , 50.8% male, 64.4% African American) in six urban classrooms from fourth- to eighth-grade class sections. Through this method of cued video response, we explore whether or not students experience the significance of autonomy-supportive instructional events or interactions as motivational theory predicts. Our results suggest that consideration of the social and relational features of the classrooms within which teachers enact autonomy support may identify influential contextual factors relevant to how and why autonomy support is linked to positive outcomes.

### KEYWORDS

Autonomy support;  
instruction; middle grades;  
motivation

RESEARCH IN THE area of educational psychology has advanced understandings of the conditions that may promote optimal motivation for students. The vast majority of the data from these studies, however, originate from adult-centric perspectives; that is, in order to establish links between teacher behavior and academic outcomes, students have most often participated in research through self-reports of perceptions and experiences assessed via adult-developed survey instruments. Rarely have researchers systematically generated data sources comprising students' unconstrained perspectives of theory-relevant instructional interactions to understand how students, from their worldview, make sense of teacher behavior hypothesized to be motivational (for exceptions see Patrick & Ryan, 2008; Urdan, Kneisel, & Mason, 1999).

Revising this inadequacy in our research approach represents more than just a preference for youth empowerment through inclusionary research practices. Such data are needed to build explanatory theories of how and why particular teacher behavior is motivational for students. For example, motivational theories related to students are often predicated on the assumption that students naturally reject pro-school orientations (e.g., valuing curriculum-specified foci, aspiring to externally established achievement goals). On the basis of this assumption, studies of motivation in schools often identify intrinsic motivation, conceptualized as when students engage in behaviors for their inherent pleasure and not for external rewards (Ryan & Deci, 2000), as the priority of motivation-enhancing instructional practice. In such a framework, one identified pathway to foster students' inner motivational resources is for teachers to exert effort to understand students' individual goals, interests and values, and then work to link instructional tasks to those unique goals, interests, and values (see for example

Assor, Kaplan, & Roth, 2002; Reeve, 2012). On the basis of evidence gathered across multiple student voice studies, however, we find that adolescent students are not so much focused on a constraint-free perspective of what *they* want to do. Instead, students are sensitive to the predetermined nature of “doing school” and are, therefore, often more focused on assessing how well any particular school-based adult is able and willing to productively assist them in navigating the obstacles and challenges that arise in that shared pursuit (Wallace & Chhuon, 2014; Toshalis, 2015).

Moreover, such data make clear that classrooms are social settings. The information that youth derive from social feedback within the context of peer networks shapes student perspectives on achievement goals (Crosnoe, 2011). Dominant conceptualizations of achievement motivation do not always account for the complicated ways in which students develop a sense of membership in the classroom community and subsequently decide to express or extend effort within those social spaces (Williams, Woodson, & Wallace, 2016).

Thus, consideration of the social and relational features of classrooms within which teachers enact motivational support, such as autonomy support, may shed light on the contextual factors that influence students’ interpretations of autonomy-supportive instructional interactions. Consequently, attending to local practices that make each setting unique (e.g., the interpersonal climate of the classroom, the achievement culture of a classroom, the routines and rituals that instantiate a particular class structure) productively explicates existing motivational theory related to autonomy support.

Within an urban charter school system, we generated data records constituting student meaning-making in relation to instructional interactions identified by researchers (guided by theory) as autonomy-supportive. By investigating how students interpret the significance of hypothesized autonomy-supportive teacher behavior, this research advances two theoretical issues. Quantitative evidence has linked autonomy support to positive student outcomes, but why and how those linkages exist has not yet been fully investigated. Students’ interpretations of the significance of teachers’ autonomy support could confirm or revise existing explanatory theory. Likewise, findings from in-depth observational studies of teaching practice have identified a well-defined set of autonomy-supportive teacher practices, but it remains unknown how different teacher behaviors may activate disparate motivational mechanisms and how contextual factors may influence both. Under autonomy-supportive conditions within particular classroom contexts, we systematically analyze students’ indigenous interpretations of three types of autonomy support to explain how or why particular types of autonomy support may influence learning outcomes.

### **Autonomy support as motivating experiences in classrooms**

Autonomy is the psychological need to experience behaviors and actions as originating from and endorsed by the self (Deci & Ryan, 1985). Current theory posits that one experiences autonomy when (a) actions are perceived as initiated and controlled by oneself, rather than external forces, and (b) tasks are selected and completed out of interest or personal importance (deCharms, 2013; Deci & Ryan, 1987; Patall, Dent, Oyer, & Wynn, 2013). As such, autonomy support is defined as interpersonal actions directed toward nurturing another person’s inner motivational resources through providing opportunities to experience autonomy (Reeve & Jang, 2006).

Quantitative studies of autonomy support in secondary classrooms have investigated students’ perceptions of teachers’ autonomy-supportive and controlling instructional behaviors through linking assessments of teacher actions with psychological need satisfaction (Skinner, Furrer, Marchand, & Kindermann, 2008), negative affect (Assor, Kaplan, Kanat-Maymon, & Roth, 2005), intrinsic motivation (Guay, Boggiano, & Vallerand, 2001; Reeve, Nix, & Hamm, 2003), and internalization of extrinsic motivation (Grolnick & Ryan, 1987; Ryan & Connell, 1989). The primary significance of teachers’ autonomy support is that such experiences are hypothesized to be energizing in directing student behavior (e.g., Reeve, 2006, 2009). Not surprisingly then experiences of autonomy have been considered particularly important to students’ engagement within the school context (Reeve, 2012). Longitudinal studies support such claims. For example, Hafen et al. (2012) found that high school students’ positive perceptions of autonomy at the classroom-level predicted increases in observed engagement

across the year. As a result, how well an educational context, or classroom, meets students' developmental needs—specifically for autonomy but also more broadly for relational connection and meaningful work—directly influences students' engagement in academic activities and their social relations within the classroom (Jang et al., 2012; Skinner, Kindermann, Connell, & Wellborn, 2009).

Recent conceptualizations of student engagement have articulated a multidimensional metaconcept comprising behavioral, cognitive, and emotional indicators (see Fredericks & McColskey, 2012, for a detailed overview). At present, autonomy support theory does not make specific predictions about the associations between types of autonomy support and the multiple components of engagement (Hospel & Galand, 2015). Nonetheless, recent studies have explored how different types of engagement, not just the amount, reported by students may be influenced by the experience of autonomy support. For example, Wang and Eccles (2013) found that middle school student perceptions of school characteristics, including the autonomy support categories of providing choice and teaching for relevance, accounted for over a third of the variance in behavioral engagement and cognitive engagement, and nearly half of the variance in emotional engagement, the following school year. Likewise, Hospel and Galand (2015) found cross-sectional associations between classroom-level autonomy support and positive and negative emotions (i.e., emotional engagement) reported by ninth-grade students.

### **Autonomy-supportive teaching**

Depending on the research design and method, autonomy support has been operationalized as very specific, often discrete, behaviors generated from laboratory settings, such as inviting learners to sit next to materials (see for example, Reeve & Jang, 2006) to very broad, often undifferentiated, behaviors assessed through surveys, such as encouraging students to work in their own way (see for example, Assor et al., 2002). Broadly speaking, autonomy-supportive teaching is conceptualized as comprising the following five dimensions: (a) providing meaningful choice in organizational and procedural aspects of classroom and task management, (b) fostering relevance and providing rationales, (c) remaining adaptive in practice through responsiveness, (d) providing students with ownership over their own ideas, thinking, and learning, and (e) using open communication to provide informational feedback to students (see for example, Bozak, Vega, McCaslin, & Good, 2008; Rogat, Witham, & Chinn, 2014).

Despite the general consensus in the literature around which teacher behaviors should be categorized as autonomy supportive, we believe that a finer-grain distinction of autonomy-supportive-teacher actions and autonomy-supportive-teacher responses contributes to understanding autonomy support as enacted by practicing teachers. Teacher *actions* are proactive and not specifically triggered by or a direct, immediate reaction to student thinking, behavior, or affect. Teacher *responses*, on the other hand, temporally and logically follow student actions, questions, comments, and/or expressions that have been made apparent or public. Teachers may be autonomy-supportive in their actions when they provide choices, offer rationales, prompt for student views and connections, and promote independent thinking. Teachers may be autonomy-supportive in their responses when they demonstrate flexibility, are respectful and constructive in their feedback, and validate student affect.

The distinction between autonomy-supportive actions and responses helps to differentiate structure from control and responsivity in a classroom. Structure in a classroom identifies the quality and quantity of information provided to students about expectations and strategies for success (Jang, Reeve, & Deci, 2010; Skinner & Belmont, 1993). Some teachers provide structure in their classrooms through autonomy-supportive actions planned in advance of live instruction and implemented consistently through proactive behavior (Wallace, Sung, & Williams, 2014). Alternatively, some teachers may lack that level or type of structure in their classrooms but are highly receptive to student input through autonomy-supportive responses, thus, minimizing controls such as power assertions and withdrawing privileges. Student engagement may decline in classroom contexts where teachers control nearly every aspect of the classroom and dismiss student input (Toshalis & Nakkula, 2012) but may increase when teaching practice is characterized by responsivity (Hamre, Hatfield, Pianta, & Jamil, 2014).

### ***The motivational significance of particular types of autonomy support***

Providing choice is a common strategy to motivate others in a variety of contexts (Patall, 2013) and, as such, choice is perhaps the most recognized dimension of autonomy support. Recent studies of the unique and cumulative effects of disparate autonomy-supportive practices in secondary classrooms have found that the provision of choice and perspective-taking, a subset of theorized autonomy-supportive instructional practices, relates to student perceptions of autonomy need satisfaction (Patall et al., 2013). Yet, there have been mixed empirical findings related to the benefits of choice in instructional contexts. Some studies have shown that students experience enhanced interest and demonstrate better performance in a task when choice is provided during instruction (see for example, Patall, Cooper, & Robinson, 2008), but other studies have shown neutral or negative effects of choice on student motivation and performance (see for example, Flowerday, Schraw, & Stevens, 2004; Reeve et al., 2003).

The strategy of providing choice involves giving students the authority to make their own procedural or methodological decisions in working through a task. While the provision of choice has been shown to have positive, negative, or neutral relations to particular student outcomes, when enacted consistently, the provision of choice by teachers to their students can convey implicit messages of trust and affirm respect for students as learners (Williams, Wallace, & Sung, 2015; Patall, Cooper, & Wynn, 2010) or prevent disinterest or boredom by giving students ownership in the method or manner of completing tasks (Assor, 2012; Patall, 2013). In this sense, choice is not about the act of choosing itself but the value of the options relative to students' personal interests and goals (Katz, Assor, Kanat-Maymon, & Bereby-Meyer, 2006).

Likewise, studies of autonomy-supportive strategies highlight the importance of providing cognitive autonomy support or promoting independent thinking for students (see for example, Assor et al., 2002; Rogat et al., 2014; Stefanou, Perencevich, DiCintio, & Turner, 2004). The strategy of promoting independent thinking consists of requesting students to draw on their own knowledge to solve problems or to work on a task. Rather than forcing students to follow a given procedure, teachers who promote independent thinking challenge students intellectually or allow time for students to explore concepts or ideas within a task (Reeve, 2006; Reeve & Jang, 2006). Providing optimal challenges (Jang et al., 2010) or creating time for independent work (Reeve & Jang, 2006) can help engage students by fostering their interest, enjoyment, and sense of competence (Reeve, 2006). Thus, this kind of cognitively oriented autonomy support, enacted through teacher questioning that positions students as coconstructors of knowledge, develops students' autonomy in thinking (Stefanou et al., 2004).

When teachers grant students more autonomy over their learning processes, they may be more motivated to engage in learning activities not only because of perceived relevance and volition but because of a sense of personal meaningfulness in the process and content (Furtak & Kunter, 2012). Thus, by promoting independent thinking, teachers can facilitate the development of students' critical thinking skills so that students become more self-reliant in future learning contexts (Stefanou et al., 2004). Although self-reliance is not the same as autonomy, students who feel self-reliant in solving problems or completing tasks may perceive their thoughts and actions as being derived from the self rather than imposed by the teacher.

Lastly, demonstrating flexibility is described in the literature generally as receptiveness, or being responsive to student questions, ideas, or comments (Jang et al., 2010; Reeve & Jang, 2006). Autonomy-supportive teachers demonstrate flexibility by adjusting current thinking, teaching strategies, lesson plans, or use of class time in response to student-generated input. Though flexibility is rooted in the literature as an aspect of using noncontrolling language, the strategy has been expanded to include not only what teachers say but also how teachers restructure the classroom based on student thinking and views (see for example, Jang et al., 2010).

Students may perceive teachers who are flexible or adaptive in their practice in response to students as valuing student perspectives and opinions. Likewise, students may feel a greater sense of freedom and control within classrooms in which teachers position students as coconstructors of classroom processes. More specifically, teachers' flexibility can be understood within a utility framework inclusive of effective diagnosis of problems or transformation of resistance. In diagnosing problems, students

interpret teachers as being useful through helping students analyze the underlying cause of poor performance and take the actions needed to address the difficulty (Reeve, 2006). In transforming resistance, teachers resolve tension between what students want to do and what teachers need students to do by transforming something not worth doing into something worth doing, often through accepting and validating negative emotions (Assor, 2012).

Conceptually, autonomy support is not about minimizing a teacher's presence but rather making that presence useful to students who are working to formulate and realize their goals and interests (Assor, 2012; Reeve, 2006, 2012). In this sense, being useful captures a broad and rather undifferentiated interpretation of motivational significance. More specifically, teachers' autonomy-supportive behavior may provide affirmation of competence or justification for why students would want to invest effort in academic activities (Reeve, 2006) and serve to increase interest in a task (Assor, 2012; Patall et al., 2013; Reeve, 2006).

No study, to our knowledge, has systematically analyzed students' indigenous interpretations of autonomy-supportive instructional interactions to develop explanatory accounts of why teachers' autonomy support leads to motivated action in students. The next section highlights the theoretical importance of understanding student perceptions of teacher behavior.

### ***The insider's view of autonomy support***

Well-evidenced paradigms across psychological subspecialties have established that the impact of any seemingly objective situation depends upon the personal and subjective meaning that a participant attaches to the experience (Ross & Nisbett, 2011). As a result, interactions within a classroom have the potential to "alter how students perceive motivationally challenging circumstances so as to support their sense of personal integrity—of competence, belonging, and purpose" (Cohen & Garcia, 2014, p. 15). Because of the power of construals, Carr and Walton (2014) describe the perceived social-relational context of a learning environment as a source of motivation. In other words, the insider's view, or a student's perception of the learning environment, is likely indicative of the motivational aspects of classrooms. The interactions that stimulate perceptions happen continuously throughout an instructional segment and the construals resulting from those interactions influence the receptivity of both the student and their teacher to fully engage in academic work (Erickson, 1987).

Student perceptions of teacher behavior may be particularly salient to students' motivation in the middle grades, because as students move into secondary schools adult monitoring increases and freedom-limiting sanctions become the norm (Toshalis, 2015). Autonomy-supportive teachers proactively manage their classrooms such that they are often able to predict student resistance and address potential social-relational issues (Williams, Wallace, & Sung, 2015). Yet, little is known about the range and diversity of perceptions activated by autonomy support. Insider views of autonomy support contribute critical insights into the social-relational context as a source of motivation for students and teachers alike.

### **The current study**

The purpose of this study is to explicate motivational theory by studying students' interpretations of autonomy-supportive actions and responses during naturally occurring teaching practices. We focused on specific categories of autonomy support (providing choice, promoting independent thinking, and demonstrating flexibility) that prior research has indicated students can differentiate among and that are associated with positive outcomes. We prioritized students' views by employing an open-ended discussion protocol that permitted us to generate a data record comprising students' interpretations of the significance of and differences between types of autonomy support provided by teachers during instruction. We intentionally were guided by theory in constraining the source material to which students responded (i.e., the video clips) and in developing our primary analytical lens (i.e., coding scheme) to refine constructs identified in previous studies of autonomy-supportive teaching. Our investigation was guided by the following two research questions:

1. How do students interpret the significance of teachers' autonomy support?
2. Do certain types of autonomy support (e.g., promoting independent thinking, providing choice, or demonstrating flexibility) engender disparate significance explanations from students?

## Methods

### *Participants*

Adolescence is typically defined by the onset of puberty. A robust body of research documents the trend toward earlier onset of puberty for girls and recent research has also identified this trend for boys, with onset occurring around 10.5 years of age for both sexes (Herman-Giddens et al., 2012). Most studies of autonomy support in classrooms, however, have typically focused on middle school or high school students despite the developmental period of adolescence extending back to the late elementary grade levels for many youth. Likewise, many state teacher education boards have also acknowledged teacher expertise needed for instruction in later elementary grades as more aligned with traditional middle school grades than preschool and early elementary grades and, as such, revised certification groups to add a middle grades certification that trains subject-matter teachers for fourth through eighth grade education. For these reasons, we focus in this study on students and their teachers in the middle grades (grades 4–8).

### *Focal classroom sampling procedure*

A complexity of studying teaching as a naturally occurring intervention (i.e., particular teacher behaviors associated with higher-quality teaching) is that typically these practices will not be observed frequently in the average classroom. In order to have higher instances of autonomy support, we purposefully sampled high-quality teachers within a predominantly urban school system. This sampling approach had the benefit of securing data on the behavior of interest within the context of interest. In other words, because we were interested in student responses to teachers' autonomy-supportive behaviors in middle grade classrooms, we needed to ensure that we would gather sizable collections of these behaviors, adequately representative of the variety of types of autonomy support.

To develop our sample, we relied upon administrator recommendations for initial identification of one middle grade teacher from each of the seven K–8 schools within the school system. We specified interest in sampling teachers able to establish and maintain positive interpersonal climates and successfully support student achievement gains. Prior to enrollment in the study, in-person classroom observations and investigation of achievement-test-score data by the lead author confirmed the validity of these nominations. All teachers recommended for the study elected to participate. Due to scheduling issues, the research team determined that one teacher would not be eligible for participation in the study. See [Table 1](#) for classroom sample characteristics. See [Appendix A](#) for brief narrative descriptions of each classroom context. Please note that the teachers' names (e.g., Mrs. Drake) represent pseudonyms created to protect the confidentiality of the focal teachers.

Procedures for securing parent consent for student participation in the videotaping of instruction, responding to the student survey, accessing official school records, and discussing video clips during focus groups occurred after the teachers consented to be part of the study. Parent letters and consent forms were sent home with each student. Student consent rates across the classrooms ranged from 65% to 100%.

### *Student sampling for cued-video-response procedure*

The cued-video-response procedure generates a data record of individual and collective perceptions of instructional interactions. As an adaption of the generic focus group method, this procedure requires

**Table 1.** Classroom sample characteristics.

| Classroom            | Grade level       | Years of experience | Average student age | Female | Percentage of students |                     |                     |                           |   |                            |                               |
|----------------------|-------------------|---------------------|---------------------|--------|------------------------|---------------------|---------------------|---------------------------|---|----------------------------|-------------------------------|
|                      |                   |                     |                     |        | Identified as White    | Identified as Black | Identified as other | Enrolled in lunch subsidy | Identified as student with special needs* | At basic or above in math* | At basic or above in reading* |
| Ms. Adams (n = 16)   | 5th-grade science | 5                   | 10.73               | 60.0   | 13.3                   | 86.7                | 0.0                 | 78.0                      | 35.0                                      | 66.7                       | 46.7                          |
| Ms. Ball (n = 18)    | 5th-grade math    | 4                   | 10.68               | 38.9   | 0.0                    | 94.4                | 5.6                 | 78.0                      | 12.0                                      | 88.9                       | 66.7                          |
| Ms. Cole (n = 20)    | 8th-grade ELA     | 13                  | 13.74               | 47.4   | 15.8                   | 84.2                | 0.0                 | 85.0                      | 0.0                                       | 100.0                      | 100.0                         |
| Ms. Drake (n = 21)   | 5th-grade ELA     | 9                   | 10.78               | 47.6   | 71.4                   | 19.0                | 9.6                 | 57.0                      | 9.0                                       | 95.2                       | 85.7                          |
| Ms. Ellis (n = 24)   | 6th-grade math    | 8                   | 11.76               | 63.6   | 36.4                   | 63.6                | 0.0                 | 69.0                      | 15.0                                      | 100.0                      | 90.5                          |
| Ms. Fleming (n = 19) | 4th-grade ELA     | 7                   | 9.79                | 36.8   | 73.7                   | 26.3                | 0.0                 | 55.0                      | 10.0                                      | 77.8                       | 77.8                          |

\*Based on state standardized test scores in the spring of the 2012–2013 academic year.



intentional recruitment among study participants with specific characteristics to best inform the research issues (Fern, 2001; Hennick, 2014). Esteban-Guitart and Moll (2014) note that historical and ideological processes deeply inform how students come to understand the social world. This perspective—that classrooms provide powerful context-linked feedback loops to students about value, capability, and belonging on the basis of social identities—formed our focus group recruitment strategy.

To ensure student participants in the focus group represented a range of “ways of seeing the world,” we used factor analyses to develop an index that assessed the latent construct of vulnerability. Specifically, student survey responses as well as official school records provided a set of variables instantiating risk and resilience factors that may influence how students understand and interpret instructional interactions. Student survey responses provided the following variables for the factor analysis: *caregiver support* consisted of three items adapted from the Network of Relationships Inventory (Furman & Buhrmester, 2009) on a scale of 1 to 5 (“I turn to my caregiver for comfort and support when I am upset,” and “I often go to enjoyable places and have fun with my caregiver.”); *participation in extracurricular activities* consisted of three items from the 4-H Youth Activity Survey (Lerner & Lerner, 2013) on a scale of 1 to 5 (“At least once a week, I participate in a youth program like the YMCA or Big Brothers Big Sisters,” and “At least once a week, I attend church, synagogue, or temple.”); *peer acceptance* consisted of three items from the Psychological Sense of School Membership scale (Goodenow, 1993) on a scale of 1 to 5 (“People at this school are friendly to me,” and “Other students like me the way I am.”). School records provided special education status and participation in free and reduced-price lunch program.

Within each focal classroom, we identified six students with higher factor scores (indicating high vulnerability) and six students with lower factor scores (indicating low vulnerability) to participate in focus groups. A range of 42.8% to 66.7% of consenting students in each class participated in either focus group. There was no significant difference between students selected to be focus group participants and students not selected to be focus groups participants in respect to vulnerability indicating representativeness of the subsample (Ms. Adams,  $t(13) = -.381, p = .709$ ; Ms. Ball,  $t(15) = 1.092, p = .292$ ; Ms. Cole,  $t(15) = -.983, p = .341$ ; Ms. Drake,  $t(18) = 1.780, p = .092$ ; Ms. Ellis,  $t(17) = 1.588, p = .131$ ; Ms. Fleming,  $t(16) = 1.486, p = .157$ ). See Table 2 for a demographic summary of participants in each focus group.

### Data generation

The data presented in this paper originate from a larger study focused on creating cultures of respect in classrooms. The full dataset includes videos of instructional segments, student records, student surveys, teacher interviews, and classroom artifacts. In this study, we focus on interaction-experienced,

**Table 2.** Focus group adolescent student demographics.

| Classroom                | Grade level       | Focus group | Average student age | Ratio        |                    | Frequency                 |  |
|--------------------------|-------------------|-------------|---------------------|--------------|--------------------|---------------------------|--|
|                          |                   |             |                     | Female: male | Black:White: other | Enrolled in lunch subsidy | Identified as student with special needs |
| Ms. Adams ( $n = 9$ )    | 5th grade science | A           | 10.71               | 2:3          | 5:0:0              | 3                         | 4  |
|                          |                   | B           | 10.75               | 3:1          | 4:0:0              | 4                         | 0  |
| Ms. Ball ( $n = 10$ )    | 5th grade math    | A           | 10.83               | 2:3          | 5:0:0              | 4                         | 1  |
|                          |                   | B           | 10.58               | 2:3          | 5:0:0              | 5                         | 0  |
| Ms. Cole ( $n = 9$ )     | 8th grade ELA     | A           | 14.60               | 2:3          | 4:1:0              | 5                         | 0  |
|                          |                   | B           | 13.23               | 2:2          | 4:0:0              | 4                         | 0  |
| Ms. Drake ( $n = 9$ )    | 5th grade ELA     | A           | 10.50               | 3:1          | 0:3:1              | 2                         | 1  |
|                          |                   | B           | 10.47               | 4:1          | 4:0:1              | 5                         | 0  |
| Ms. Ellis ( $n = 11$ )   | 6th grade math    | A           | 11.56               | 4:2          | 5:1:0              | 3                         | 3  |
|                          |                   | B           | 11.87               | 3:2          | 3:2:0              | 5                         | 0  |
| Ms. Fleming ( $n = 11$ ) | 4th grade ELA     | A           | 9.70                | 1:4          | 2:3:0              | 2                         | 0  |
|                          |                   | B           | 10.03               | 1:5          | 2:4:0              | 4                         | 0  |

perception-derived units of analyses and, therefore, only report on the cued-video-response data. In a previously published manuscript (Wallace, Sung, & Williams, 2014) we report on autonomy-supportive classroom management using the videos of instructional segments and another cued-response data source—the Adolescent Affective Response Rating (AARR-C).

### ***Classroom observations***

Sixty instructional segments were filmed in the focal classrooms from September 2012 to December 2012 ( $N = 6$ , 10 instructional segments of full lessons per class section). See Figure 1 for a flow chart of sequential methods and analytic processes specific to this study.

### ***Identification of autonomy-supportive instructional interactions***

Videos of seven instructional segments were uploaded in Transana 2.52 from each focal classroom to identify autonomy-supportive instructional interaction clips (average of 50.45 seconds in length, ranging from 8 seconds to 2.12 minutes) through an iterative coding process. Both authors participated in the iterative development of the video-coding protocol.

Based upon a review of autonomy-supportive instructional practice literature, we developed detailed descriptions of autonomy-supportive instructional interactions. As we viewed the instructional segments, we converted the general literature-based descriptions into decision rules governing the identification of autonomy-supportive instructional interactions in the videotaped instructional segments. Specifically, we independently viewed 30-minute instructional segments during which the primary coder first identified an autonomy-supportive instructional interaction and then assigned a descriptive code indicating the type of autonomy support provided during the interaction; the secondary coder subsequently reviewed the data log while simultaneously watching the instructional segment, noting any potential disagreement with the primary coder. (We rotated roles so that each author fulfilled primary and secondary coder roles equally across clips.) Two kinds of disagreements were possible—the primary coder failed to identify the interaction as autonomy-supportive or coders applied different codes to the same interaction. All disagreements were discussed and resolved by consensus during data-review meetings. Of all the instructional interactions identified and coded, 11.7% were initially classified as discrepant in the ways described above. Once video coding was complete, we externally validated our identification and code application process by creating a subsample of blinded clips and having a researcher external to the research team view the clips to identify the type of autonomy support represented from our coding protocol. She correctly identified all 10 of the blinded clips.

Reviewing the full corpus of autonomy-supportive instructional interactions ( $N = 204$ ) afforded us new insights into the categorization of autonomy support that suggested differentiating active versus responsive autonomy support. Active strategies represented proactive teacher behaviors whereas responsive strategies represented teacher behaviors that are in direct response to student talk and/or student behavior. Conceptualizing autonomy support as consisting of active and responsive components required both collapsing and differentiating interactions identified and described in our initial decision rule document. Simultaneously, we revisited the literature to refine our definitions of each autonomy support strategy. With the resulting revised decision rule document, we reviewed all identified autonomy-supportive instructional interactions. Around 92% of the autonomy-supportive interactions maintained their original classification. See Table 3 for an excerpt of the definitions that informed our decision rules.

### ***Cued-video responses***

In February 2013, small groups (4–6 student participants per focus group, 2 per class section) of students ( $N = 59$ , 50.8% male, 64.4% African American) from each class section discussed autonomy-supportive video clips. The group discussion format productively replicates the co-construction of meaning that occurs through ongoing social interaction in classrooms and students' natural tendency for social interaction. Moreover, focus group discussions have the advantages of making participants feel less threatened sharing negative perceptions (Hennick, 2014).

**Table 3.** Excerpt of autonomy-supportive instructional interactions coding scheme.

|          | Category/strategy                           | Definition  | Example  | %    |
|----------|---|---|--|------|
| Action   | [1] Choice <sup>1,2,3,5</sup>               | Offering students choices in working through a topic or task.   | "It doesn't have to be done the way I just showed you. Do what makes more sense to you."   | 22.2 |
| Action   | [2] Rationale <sup>1,2,3</sup>              | Providing an explanation of the relation between topics or tasks or providing reasoning for learning a lesson or doing a task.                            | "It's good to get in the habit of doing this because we're going to build on this. This step is important for what we're going to do later." | 2.0  |
| Action   | [3] Student views <sup>1,3,4</sup>          | Teacher prompts a dialogue/discussion for student opinions, criticisms, or reactions on a topic or task.  | "Based on your personal thoughts, what do you think other people your age would think of this?"  | 2.0  |
| Action   | [4] Student connections <sup>1,3</sup>      | Teacher prompts dialogue/discussion for student personal connections or experiences in relation to a topic or task.                                       | "Why might you want to know this? When have you used this information?"  | 2.5  |
| Action   | [5] Independent thinking <sup>1,2,3,5</sup> | Teacher prompts students in a way that opens dialogue/discussion to encourage students to initiate their own thinking process.                            | "What do you know about proportions? How can you use what you know to solve this problem?"   | 22.7 |
| Response | [6] Flexibility <sup>2,4</sup>              | Teacher expands on or incorporates student ideas, suggestions, or comments into the lesson or allows students to carry out their requests or suggestions. | "Did you hear what your classmate said? It's a very interesting observation. We can take a moment to talk about that more."                  | 30.0 |
| Response | [7] Respectful, constructive <sup>2,3</sup> | Teacher responds respectfully or constructively to student resistance, criticism, or correction.  | "Yes, I see what you're saying. Thank you for pointing that out. I didn't do that here because ..."  | 16.0 |
| Response | [8] Validating <sup>2,3</sup>               | Teacher expresses an understanding of or identifies with student thinking and affect.   | "I know something is bothering you. Let's figure out a way to handle it so it doesn't affect your classwork."                                | 2.5  |

<sup>1</sup>Assor et al. (2002); <sup>2</sup>Jang et al. (2010); <sup>3</sup>Reeve and Jang (2006); <sup>4</sup>Skinner and Belmont (1993); <sup>5</sup>Stefanou et al. (2004)

Autonomy support clips were purposefully sampled within each teacher's video-clip collection to provide consistency across class sections in terms of the kinds of autonomy-supportive instructional interactions cued during discussions. Hence, students from different classes viewed video examples of the same types of autonomy support. Within each classroom, the two focus groups viewed the same set of videos. Across classrooms, the focus groups were led similarly with the only difference being they viewed their teacher's clips. (Supplemental materials available at publisher's website provide brief narrative descriptions of the events and interactions depicted in the video clips shown.)

For all focus groups, a facilitator followed a standardized protocol consisting of open-ended discussion prompts focused on eliciting students' interpretation of the significance of the instructional interactions depicted in the video clips. Prompts to encourage indigenous meaning making to be made visible included such open-ended questions as, "Why do you think the teacher did that?" and "How did you feel?" The facilitator as well intentionally prompted with, "What do others think?" in order to acknowledge all voices during the discussions.

### Analytic procedures

We engaged in a four-step analytic process to generate evidence to answer our research questions.

#### Cycle 1 coding

Using the verbatim transcripts generated from the focus group audio recordings, we initially inventoried student interpretations of the video clips ( $N = 94$ ) to locate "direct" responses to clips. Direct responses represented significance statements (i.e., interpretations) that directly and explicitly referenced the autonomy-supportive instructional interaction cued during the focus group. Indirect responses, on the other hand, represented statements not explicitly linked to the concrete particulars of

the instructional interaction viewed (e.g., accounts of prior experiences, opinions about school-related topics). These indirect responses were excluded from further analyses. We then created a subsample of direct responses of *promoting independent thinking* ( $n = 21$ ), *providing choice* ( $n = 11$ ), and *demonstrating flexibility* ( $n = 11$ ) using these mechanical codes. This process resulted in a reduced data set of short extractions of text from the focus group transcripts (hereafter referred to as excerpts) containing a single direct response made by an individual student to one of three types autonomy support named above.

### Cycle 2 coding

During Cycle 2 coding, we applied significance codes to each excerpt. A review of autonomy support literature identified six hypothesized explanatory accounts of why teachers' autonomy support leads to motivated action in students. These theory-predicted-significance explanations included such support being useful in (a) helping students realize their interests and goals, (b) diagnosing problems, (c) transforming resistance, (d) confirming competence, (e) justifying investment, and (f) increasing interest. These codes constituted working hypotheses about the motivational mechanisms activated by autonomy support. For significance explanations that could not be accounted for by the significance codes described above, we applied a generic interesting/unknown code.

### Cycle 3 coding

During Cycle 3 coding, we engaged in holistic coding to analyze the excerpts coded as interesting/unknowns. Because we were interested in significance explanations, this coding process served more to, as Saldaña (2012) has described elsewhere, articulate emergent conceptual interpretative processes that students expressed rather than to generate descriptive, topical categories.

### Pattern identification

In this final stage of analysis, we searched for consistent patterns of explanations provided across focus groups to explore whether or not students' interpretations of the significance of autonomy support differed in relation to particular types of autonomy support. Reviewing the results of Cycle 1 and Cycle 2 coding, we generated a set of assertions through an inductive process of reviewing the data corpus. We then tested the validity of the assertions we generated by seeking disconfirming and confirming evidence following Erickson's (1986) methods for research on teaching. Doing so, we identified patterns evident in the codes applied to and the content of focus group transcript excerpts within a particular type of autonomy support and across types of autonomy support.

## Findings

Across each type of autonomy support, students offered significance statements corresponding with their interpretations of autonomy-supportive instructional interactions. These included both significance statements predicted by existing theory as well as emergent significance statements not accounted for in current autonomy support literature. Not surprisingly the most viewed types of autonomy support—promoting independent thinking, providing choice, and demonstrating flexibility—garnered the greatest number of significance explanations ( $n = 21$ ;  $n = 17$ ;  $n = 11$ , respectively). Yet, the fact that promoting independent thinking generated the most significance statements compared to providing choice and demonstrating flexibility—even though promoting independent thinking was viewed with similar frequency as providing choice and with less frequency than demonstrating flexibility—seems indicative of the important role cognitive scaffolding may have played in the classrooms we studied.

See Figure 2 for the proportion of predicted and emergent significance explanations by type of autonomy support. In Figure 2, each set of bars represents one category of significance statements. The first four categories (utility, diagnosis, transformation of resistance, interest generation) represent the a priori categories of motivational mechanisms articulated in existing theory and applied to the transcript excerpts during Cycle 2 coding. In the excerpts containing student meaning making that theory

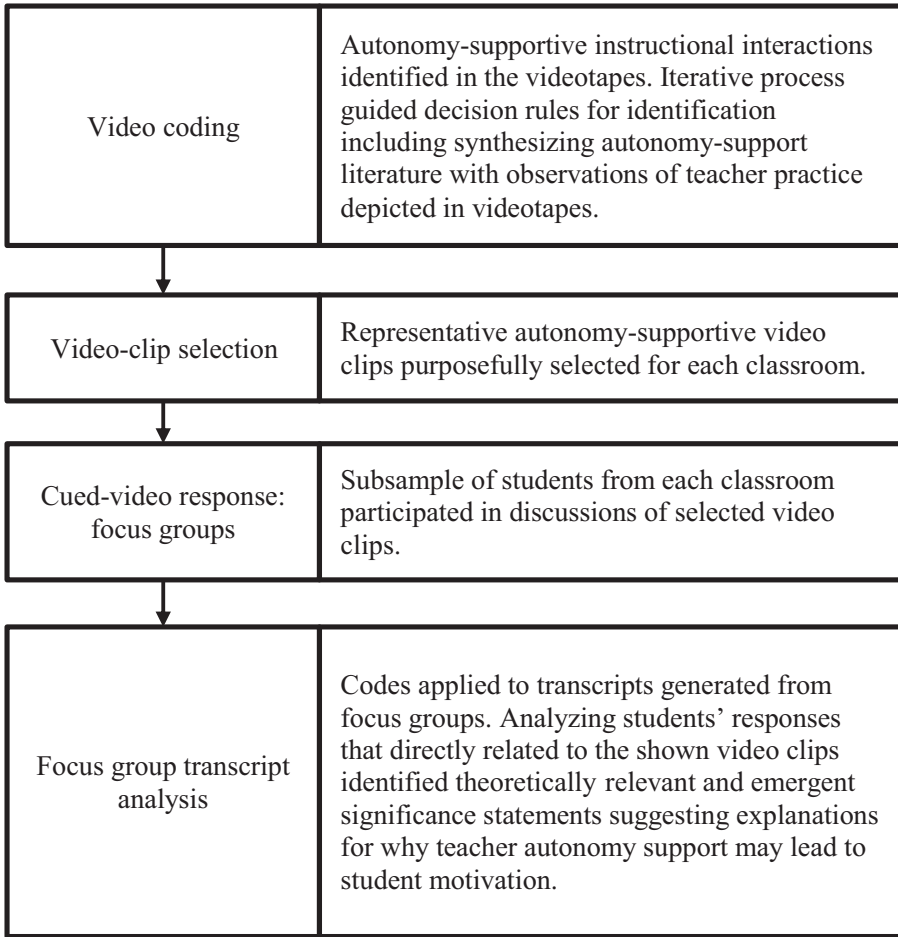


Figure 1. Flow chart of sequential methods and analytic processes.

predicted ( $n = 32$  significance statements), students most often noted teachers' utility (12 excerpts compared to eight for transforming resistance, six for increasing interest, and five for providing diagnosis). Students made one significance statement related to affirming competence and no significance statements related to justifying investment in response to autonomy support clips. These categories

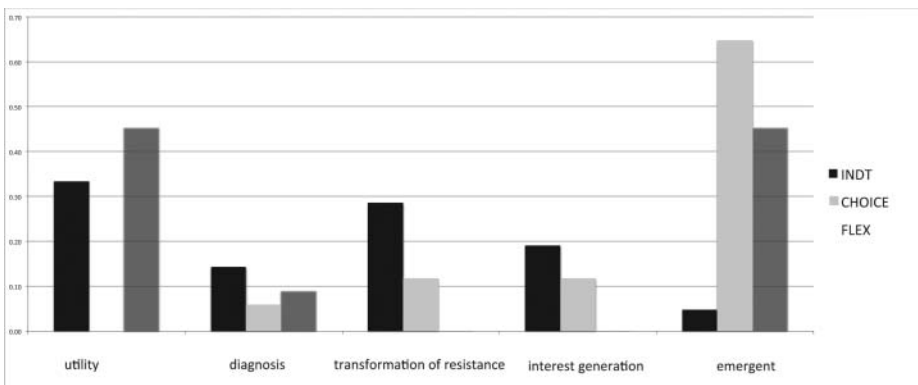


Figure 2. Proportion of motivational significance explanations for each type of autonomy support.

are, therefore, not represented in Figure 2, but were explored in our analytic procedures. The last category (emergent) represents significance statements ( $n = 17$ ) that we noticed during the Cycle 2 coding process. These explanations of significance were not well summarized by the codes (i.e., motivational mechanisms) derived from theory.

### ***Student interpretations by type of autonomy support***

In the following sections, we discuss the indigenous significance explanations offered by students during the focus group discussions. A significance explanation represents a naturally occurring statement of the reason for or cause of meaningfulness or importance of the instructional interaction represented in a video clip viewed by students. To organize results, we first examine significance statements that confirm the underlying mechanisms autonomy support theory has generically hypothesized to be the pathways by which autonomy support influences student behavior and action. Then, we consider emergent significance statements made by students in our study that revealed novel insights into context-specific construals of autonomy-supportive interactions.

### ***Motivational significance of teacher autonomy-supportive actions***

Teacher autonomy-supportive actions, as defined previously, are proactive teacher behaviors that include promoting independent thinking and providing choice. We first discuss students' interpretations related to the motivational significance of teachers promoting independent thinking.

***Student interpretations of promoting independent thinking.*** Students made the greatest proportion of theory-predicted-motivational-significance statements when viewing clips of teachers promoting independent thinking (i.e., requesting student explanations to elicit students' own knowledge to solve problems or work within a task). These significance responses included generalized utility interpretations (eight out of 21 excerpts) and more-specific forms of utility, such as transformation of resistance (six out of 21 excerpts) and diagnostic assistance (three out of 21 excerpts), and interest generation in the task (four out of 21 excerpts). The emergent significance statements included student respect for one another (one out of 21 excerpts) and teacher messaging about not giving up on students (one out of 21 excerpts).

### ***Utility***

Students' interpretations of teachers' utility appeared to be embedded within the implicit goals students had internalized about doing well in a class, getting good grades, and/or not getting in trouble; namely, students frequently remembered and accessed these kinds of academic achievement goals during video clips of teachers promoting independent thinking. Phrases such as "figure out the answer" (sixth grade, focus group A, Clip 7) and "not doing anything that might get us in trouble" (eighth grade, focus group A, Clip 3) well represent these kinds of interpretations. An eighth-grade student interpreted his teacher's use of metacognitive scaffolds in terms of academic success in the following way:

So she was, like, giving the student instructions on how to do the assignment better and, like, she was trying to get him to notice why he got certain questions wrong so he could be better—like, so he could do better on the next assignment or next set of questions. (Eighth grade, focus group A, Clip 4)

The student made sense of teacher behavior as supporting individual growth but confined to succeeding in classroom tasks. The promotion of independent thinking enacted through metacognitive support or supporting students to evaluate their prior thinking to inform future performance appeared to signal an investment in student development.

Furthermore, in terms of utility, one promoting-independent-thinking clip showed a teacher questioning students during a whole-class-strategy-sharing session. A student talked about the significance of the teacher's facilitation of the classroom discussion in the following explanation:

[The teacher] asks questions, as well, instead of, like, the students just like asking questions, and if someone doesn't get it, she, like, helps them understand why that person did what they did to solve the problem. (Sixth grade, focus group A, Clip 5)

The student explained the teacher's behavior as helpful; the teacher sought to promote student understanding through the use of clarifying questions. Supporting students' independent thinking through scaffolded questioning positioned the teacher from this student's worldview as a useful facilitator of monitoring student progress or understanding. This perceived usefulness is consistent with autonomy support theory broadly. However, autonomy-support theory emphasizes students' perceptions of the value of the learning activity itself rather than the value of the teacher her- or himself. Likewise, during the second-focus-group viewing of the same clip, a student offered another utility explanation that focused on the teacher rather than the task:

I liked how she questioned, uh, the students, made them think, because if you don't ask the questions, then they won't like get it...So, if you ask them questions that makes them think more, then [the students] get it. (Sixth grade, focus group B, Clip 5)

Utility interpretations derived from the experience of teachers promoting independent thinking appeared to provide students a sense that the teacher was useful in directing attention to ideas and concepts that serve to prepare students for future learning. Teachers in our sample engaged students in extensive question-and-answer interactions in nearly every lesson. In those question-and-answer interactions, teachers modeled ways to approach or think through a particular topic or problem. In such a context, the enactment of promoting independent thinking may be conceptualized within an expert tutor framework such that outstanding teaching is characterized by simultaneous attention to motivating and providing emotional support and to providing feedback and transmitting information (see for example Lepper & Woolverton, 2002).

For example, a student viewing a different promoting-independent-thinking clip from the same class section commented, "She was also trying to get to the point that it could be explained in two different ways, because ... it was important for them to realize that they could get the same answer" (Sixth grade, focus group B, Clip 6). The student understood that in an inquiry-based class, like the one they were members of, the basis of ongoing participation is communicating, processing, and accepting multiple solutions to a problem. The student recognized and named the teacher's role as useful in terms of helping students understand multiple mathematical solutions to open-ended tasks and also gaining the skills necessary to productively participate in collaborative problem solving. In this regard, students in our study were less concerned with being "free from external forces" (Reeve, 2012, p. 154) in some global sense and more concerned with how their teacher supported students' academic success in their particular context. Though the teachers in our sample exhibited many autonomy-supportive behaviors, their classrooms mirrored typical classrooms in terms of learning goals and assessments. Students were given specific learning goals to master (though students were often able to choose different ways to achieve those goals) and were assessed by the completeness or quality of their work. It has been our experience that in many classroom contexts, students are rarely given the opportunity to explore and follow their own goals and interests as the autonomy-support literature suggests. Thus, students' perceptions of teachers utility may be activated by how well the teacher supports students in succeeding in her classroom rather than how she supports students in their own definitions of learning.

While discussion-based classroom experiences may make such significance explanations more likely, the promoting-independent-thinking clips depicted a diverse collection of potential instructional experiences. Experiences portrayed in the clips included teachers launching a new project-based task, providing one-on-one feedback during independent work time, and facilitating whole-class discussions. A commonality across clips, however, was that student thinking was made explicit, verbally noted, or discussed in all clips identified as promoting independent thinking. Student thinking was not generally made visible for the purposes of assessing students' understanding but rather to generate new information or work toward a shared understanding. Moreover, in the process of making student thinking visible, incorrect answers or responses were seen as opportunities for students to re-evaluate their thinking. For example, in one clip, the teacher talked with a student about his assignment during

which she informed him that he had one right answer and one wrong answer. An eighth-grade student explained the motivational significance of his teacher's promotion of independent thinking in this way:

Like, how she said, "Well, look at it." Like, she's not just going to give you an easy answer once you get it wrong that first time. She going to "X" it out, and then she's going to be like, "Go back and try and see what you missed the first time. (Eighth grade, focus group B, Clip 4)

Across the focus group discussions, statements made by students in response to promoting independent thinking included many generic interpretations about teacher behavior focused on helping. These statements appeared to be founded in an evidentiary basis of witnessed ability to foster skill acquisition and demonstrated investment in students' learning now as well as in the future.

Making thinking visible, while productive toward taking advantage of a teacher's useful guidance to facilitate productive participation in the learning community, requires students to be comfortable with the potential psychological and social vulnerability that accompanies such contributions. A student noted this vulnerability in the excerpt below:

It's kinda like testing what you know, because it's, like, say some students don't really want to speak up because like we said before they might be afraid that people will think they're like not like smart enough to ask a question. If they ask a question they might get made fun of for it. So it's kind of like if [our teacher] were to ask if you like agree with her or if you agree with what she just said, then you kind of get out of your comfort zone and you're like able to say what you think. (Sixth grade, focus group B, Clip 5)

The student explained how in classrooms, where students feel uncertain about whether the teacher is an ally or not, they may feel anxiety when the teacher prompts for students' independent thinking. However, in the classrooms we studied, teachers were able to create a seemingly low threat context for students to participate in class and to "say what you think." This context-dependent view suggests that the provision of autonomy support may be expanded beyond supporting individual student autonomy to consider the social or relational context within which autonomy support occurs. Though teachers may exhibit autonomy-supportive behaviors, those behaviors may be interpreted differently depending on the psychological vulnerability or threat experienced by students in the classroom.

In terms of teachers transformation of resistance, student interpretations focused not so much on student resistance to doing what the teacher was asking of them but rather on wanting to "do school" successfully and facing obstacles in doing so. The uncertainty or anxiety of not knowing how to do something paired with past evidence that a teacher can successfully bring students from confusion to competence engendered trust. This seemed particularly salient when students in our sample viewed provision of choice clips, which we discuss in the later section.

**Interest.** In four instances, students named emotions related to interest generation when asked how they felt during the instructional interaction depicted in the video. Students made statements such as, "It makes me feel excited" (fifth grade, focus group A, Clip 2) and "It was fun" (fifth grade, focus group A, Clip 1). A fifth-grade student elaborated:

I think it's fun because we get to explain, like, what we know about it and what we don't know and then we could ask people for help like, "What do you mean?" (Fifth grade, focus group B, Clip 2)

The student associated fun with doing experiments in class when such a task provided students with opportunities to articulate explanations and engage in questioning each other. The response also reveals student interest in a task as derived from trying to understand what is unknown with the collaborative help and support of peers. Another student from a sixth grade class specifically mentioned interest in relation to a teacher's action:

[The teacher] makes the conversations like more interesting because instead of just the students asking questions, she asks the questions and it also gives to students like something challenging to do. (Sixth grade, focus group A, Clip 5)

Similar to the previous response, the student alluded to a collaborative environment in which students are asking each other questions during a strategy-sharing opportunity. This student perceived



that the task was made more interesting by the teacher asking questions as well, thereby adding to the level of challenge. Students' affective responses of enjoyment, fun, and interest as related to the task appeared unique to promoting independent thinking given that such responses were not articulated in relation to providing choice or demonstrating flexibility (described in later sections).

**Emergent findings.** The promoting-independent-thinking clips generated a few emergent-significance explanations. One of the two emergent significance explanations related to the teacher investing in students' learning by "not giving up on him and not letting him give up" (sixth grade, focus group B, Clip 7). Another emergent-significance explanation related to peers' respectful behavior during strategy-sharing time in mathematics:

I liked how the class ... [was] respectful. She [a classmate] was up at the board, like they all looked at her and paid attention. (Sixth grade, focus group B, Clip 5)

This student highlighted that feelings of respect can result from autonomy-supportive interactions if the classroom context allows students to share their thinking without threats of harassment from peers. In these classrooms, teachers managed peer relationships such that students were generally respectful of their peers' questions and thoughts. This suggests that teachers ability to establish and maintain a classroom culture of respect may be especially influential in how autonomy support is interpreted when enacted during instructional interactions wherein students are interacting with each other in a public classroom space.

In general, representations of teachers promoting independent thinking engendered student interpretations of how the teacher is advantageous or even indispensable for a successful learning experience. Indeed, students' indigenous utility perceptions validate theoretical conceptualizations of autonomy support as not minimizing a teacher's presence but rather making the teacher's presence useful to students (Assor et al., 2002). In addition to being useful, promoting independent thinking was associated with diagnosing issues, transforming resistance, and increasing interest.

**Student interpretations of providing choice.** In our analyses of significance explanations made in response to viewing providing choice clips, we found evidence for the significance of choice activating perceptions of meaningful social connection. In this section, we detail students' interpretations of teachers providing choice as reinforcing perceptions of social belonging and trust.

**Interest.** Surprisingly, interest, a central focus of why choice is motivationally significant in current autonomy support literature, was not a common significance explanation related to providing choice in the focus group discussions (only two out of 17 direct response excerpts). In one of the two significance explanations related to interest generation, an eighth-grade student spoke of interest, but in the context of becoming interested in a topic as a result of being willing to put in the effort to do well in the class:

Whenever she pushes us to do good things, it's like you know that she cares, and you know that it's better that we just do it, because...whatever you're learning about it, you might become interested in it. (Eighth grade, focus group B, Clip 9)

Hence, interest was positioned to be the result of perceiving that the teacher was "push[ing] us to do good things" and was not attributed to experiencing choice in a particular instance. In another focus group, a sixth-grade student indirectly mentioned interest generation when describing the classroom routine of the teacher offering students the opportunity to use different strategies for solving math problems and discussing those strategies as a class:

She'll say if like did anyone else do it a different way. I think that's cool because there's like more than one way to solve it, because I think life would kinda be boring if there was only like one way to solve everything. (Sixth grade, focus group B, Clip 11)

The student indicated a personal identification with and valuing of the way in which instructional tasks were carried out within the classroom. For students in the classrooms we studied, the provision of choice was not perceived as an instance during instruction but a way of doing things in the classroom or a way of understanding productive problem-solving. That may have been because choices were provided regularly in the classrooms and framed as decisions that developing students should make in their learning process. In other words, many times, the choices provided were about becoming more independent, more productive learners rather than about preferences. It is unclear whether this particular student internalized the value of multiple and diverse perspectives through interactions with the teacher and classmates or whether “there’s more than one way to solve it” reflected a prior belief. Importantly, in both significance explanations students expressed positive affect toward teacher actions rather than explicit intrinsic enjoyment toward or interest in the *task*, thus suggesting the primacy that personal connection to the teacher plays in the interpretation of autonomy support.

**Emergent findings.** Students often interpreted providing choice as a means to actualize such purposes as getting good grades, understanding the task, knowing the teacher’s expectations, and preparing for the future. The majority of emergent significance explanations (11 out of 17 direct response excerpts) made in response to providing choice contained interpretations of facilitating productivity or structuring tasks in such a way as to make learning possible now and in the future.

To one student, his teacher’s provision of choice in how to complete a task meant that the teacher recognized students’ need to prepare for high school. He described this interpretation in the following excerpt:

It makes us feel like, like, us being eighth graders and going into high school, I think it gets us ready for high school, like, how we’re going to be in a more open environment and how we’re—how the teacher is going to interact with us and how, like—of course, like, we’re going to have, like specific things that we’re going to have to do, but, like, we’re going to have options. (Eighth grade, focus group A, Clip 8)

The student was aware of the impending shift from middle school and high school and perceived his teacher as actively preparing students for that transition through providing choices. The provision of choice, then, was not directly related to his motivation or engagement in the task. Instead, choice became part of the classroom norms that provided students with opportunities to practice skills they would encounter in upper grades.

Sometimes students perceived choices as teachers acknowledgment of students developing sense of self and unique needs as individual learners. Teachers in our sample seemed to provide choices, not for the sake of providing choices or to have students be more invested in a particular task, but because they valued students’ individual expression and different means of working through a task. A student explained the value of the creative process and how freedom to express that creativity allowed for individual talent development:

[Our teacher] gives us freedom to be creative. Because, like, we’ve all got, like, different talents, like writing. So she, like, gives us ways to bring it out ourselves. She doesn’t give us specific things that we have to do. I mean, she does, but it’s like we can go around it. We can put our own things into it. (Eighth grade, focus group A, Clip 9)

This student appreciated that particular tasks allowed for freedom to be creative. Additionally, the student felt that she could “put our own things into it,” implying she could modify the task to reflect her interests and values.

Yet, a teacher’s emphasis on exploration did not occur, according to student participants, absent of support. In the sixth-grade-inquiry-based math class the teacher diagnosed confusion or lack of understanding when students were required to explore different strategies. As one student explained, “[The teacher] really helped him out and went through it step by step” (sixth grade, focus group A, Clip 11). This teacher simultaneously addressed disengagement and frustration. As another student explained, “She comes over and like ask[ed] them ‘what’s wrong’ to see what’s wrong” (sixth grade, focus group A, Clip 11). Thus, in terms of exploration facilitated by providing choice, students in our sample

interpreted the significance of choice in relation to ongoing teacher support in order to successfully navigate the choice provided.

Choice appeared to not only encourage exploration but, in one case, also communicated affirmations of competence. In response to a clip in which the teacher requested students to create geometric patterns of their choosing, a student expressed:

I think she's telling us to try our best ... well, what I'm trying to say is that she tells us to try our best in what we do. It doesn't have to be perfect, but if we try our best, that's what's important ... She believes in me ... She thinks I can do it. (Fifth grade, focus group A, Clip 10)

In this providing-choice clip, the teacher did not make explicit statements related to competence. Yet, the student interpreted the significance of the teacher emphasizing effort rather than perfection as an affirmation of the student's capabilities.

Providing choices that are congruent with students' goals, interests, and values may, however, interact in complex ways with motivation and engagement; for example, one student stated that the teacher's "class is the hardest, but it's the easiest at the same time, because you're doing it your way but you're doing her work" (eighth grade, focus group B, Clip 9). Here, the student explained that the task is controlled by the teacher and, as such, can be very challenging depending on the task or the teacher's expectations. Yet, the significance of "doing it your way" engendered a perception of making the work feel "the easiest" overall.

### ***The motivational significance of teacher autonomy-supportive responses***

Teacher-autonomy-supportive responses are observable behaviors that are in direct response to student actions, questions, comments, and/or expressions that have been made apparent or public. Here we discuss the teacher-autonomy-supportive response of demonstrating flexibility.

***Student interpretations of demonstrating flexibility.*** Teachers' demonstration of flexibility is considered a responsive autonomy-support strategy. Unlike promoting independent thinking or providing choice, teachers, when demonstrating flexibility, are responding to student input or contributions. Thus, demonstrating flexibility clips can have promoting-independent-thinking-like characteristics or providing choice-like characteristics depending on whether the thinking or the choice is initiated by the student.

***Utility interpretations similar to promoting independent thinking.*** In one case in which demonstrating flexibility depicted the teacher incorporating students' thinking into the discussion, students made significance statements similar to those made in response to the promoting-independent-thinking clips. This independent-thinking-like, demonstrating-flexibility clip depicted the teacher responding to a student question about whether she could help other students and, subsequently, engaging in dialogue about appropriate, prosocial ways to help other students in class. A student from that class said in the focus group discussion:

[Our teacher's attempt to] understand what the words [we're] like trying to say and ... asking what questions about what we don't understand [shows] she's helping us out. (Fifth grade, focus group A, Clip 14)

The student interpreted that the teacher was trying to understand what the students were saying in the conversation, both literally and conceptually. In this case the teacher demonstrated flexibility in classroom procedures and routines; the teacher accepted the student's suggestion of helping others after a task. The interaction indicated that the student was comfortable enough to offer a suggestion and that she could influence what happens in the classroom. When it is related to classroom procedures and routines, demonstrating flexibility may be supportive of perceptions of agency in the classroom. In this case, the teacher not only accepted the student's suggestion but also incorporated an element of promoting independent thinking by talking through what it means to help others. In this way, the teacher created a shared understanding of "helping others" and reiterated classroom norms around peer-to-peer interactions. The teachers in our sample, in demonstrating flexibility, shared

authority and power in the classroom with their students so that students could influence the structure or procedures in their classrooms.

***Emergent findings similar to providing choice.*** In classroom contexts in which teachers demonstration of flexibility resulted in allowing students to carry out their requests or suggestions, students made significance statements similar to those made in response to providing choice. For example, a choice-like demonstrating-flexibility clip showed the teacher permitting a student to use a resource he had secured that was not essential for completion of the activity. The clip generated the following response:

We get freedom. She gives us directions and then we could, like—we can talk about the topic instead of being quiet and not talking to nobody. (Eighth grade, focus group A, Clip 15)

The student interpreted the teacher's calm reaction to the student taking a resource as an indication of students' freedom in the classroom. Thus, the student's significance explanation has elements of facilitating productivity that were associated with providing choice.

Demonstrating flexibility was not interpreted as an instance of support but rather as the way things happen in the classroom—when provided by students, teachers acknowledged and accepted opinions and suggestions. In these classrooms, student opinions and suggestions were frequently recognized as contributions to classroom norms or processes instead of framed as distractions or interruptions.

***Differences between autonomy-supportive actions and responses.*** Contrary to both active autonomy-support strategies—promoting independent thinking and providing choice, when responding to demonstrating-flexibility clips, a responsive autonomy-support strategy, students noted teacher characteristics. Though only a couple students (two out of 11 direct response excerpts) referred to teacher characteristics after viewing demonstrating flexibility is noteworthy because no references to teacher characteristics exist in excerpts related to providing choice and promoting independent thinking. In response to a clip in which a fifth-grade teacher elaborated on a student question, a student explained:

We know that [Miss Adams and the assistant teacher] can help us cause they're nice teachers and they'll be able to help us with the questions, and people will like to ask them because, if they was mean, people would be probably scared to help 'em with the question. (Fifth grade, focus group B, Clip 13)

The student contrasted her “nice” teachers with “mean” teachers. For this student, the disposition of a teacher was important as “nice” teachers responded constructively to questions. On the other hand, according to this student, students would be unable to even consider approaching “mean” teachers with questions due to the perceived psychological threat of such an interaction. Similarly, in response to the clip described above when the eighth-grade teacher allowed a student to carry out a request not originally included in the task, a student stated: “The teacher is very open to using other resources in the classroom” (eighth grade, focus group A, Clip 15). Rather than describing what the teacher did in terms of giving students access to resources, the student characterized the teacher as being “very open.” In these two excerpts, students described their teacher by assigning a trait (e.g., nice, open). For providing choice or promoting independent thinking, students focused on how teachers helped students in their learning or fostered student development. Though demonstrating flexibility may also serve a similar function, the motivational significance of this strategy may be influenced by students' context-specific interpretations of what type of person the teacher is (e.g., friendly, harsh, sincere, strict).

The demonstrating flexibility clips did not elicit responses around interest generation. Instead, when students were asked how they felt during the instructional interactions depicted in the video clips, students gave descriptions such as, “I feel comfortable” (fifth grade, focus group B, Clip 13), “I felt happy” (fourth grade, focus group A, Clip 17), and “They trust [the teacher]” (eighth grade, focus group A, Clip 15). Interestingly, several students articulated negative emotions in their significance explanations of demonstrating flexibility. For instance, after watching the clip for which the teacher allowed a student to use an unrequired resource, an eighth grade student articulated:

Okay, so I think—because some of the kids, whenever Ms. Cole talks to them, they get irritated. And—I’m not going to lie—I do it, too. But, the thing about it is, she’s doing it because she cares, and she wants to know are you actually doing your work or are you just playing around. (Eighth grade, focus group B, Clip 15)

Though the student admitted to feeling irritated when the teacher monitored his work or behavior, he recognized that the teacher was doing so because “she cares.” The response reveals that negative emotions may not be absent during autonomy-supportive instructional interactions. In classroom contexts wherein students experience numerous positive occurrences, the negative emotions may not hinder motivation as students come to justify teachers actions by assigning more positive meanings to teachers behaviors.

## Discussion

In this study, we engaged in an analytic process to understand how students, from their worldview, made sense of teacher behavior hypothesized to be motivational. Specifically, we applied an a priori set of codes representing articulated mechanisms in motivational theory and emergent codes representing mechanisms not predicted by theory. Our results suggest that students in the classrooms we studied were attuned to how teachers supported the shared goal of academic success more so than how teachers provided opportunities for self-realization. Significance explanations related to utility, broadly, and diagnosing and transforming resistance, specifically, represented the largest proportion of theory-predicted interpretations of autonomy-supportive instructional interactions.

What do we gain from a context-dependent understanding of autonomy support? In this context, defined in part by the accountability-driven educational system within which the classrooms are embedded but also in part by the positive interpersonal connections the teachers in our study established and maintained, discussions of autonomy support focused on navigating the external forces of the institution of school, inclusive of power differentials based upon adult status versus student status. In such a *potentially* oppressive structure, teachers personal connections are a welcome relief to the threat of being mistreated or misunderstood (Toshalis, 2015). This may explain why students in our sample often referenced the teacher or teacher behavior rather than features of the task per se. Overall, the lower proportion of theory-predicted-significance explanations (versus emergent explanations) may suggest that consideration of the social and relational features of the classrooms within which teachers enact autonomy support may identify influential contextual factors relevant to how and why autonomy support is linked to positive outcomes.

Our study is the first to identify the promotion of independent thinking as activating nearly all of the theory-predicted–motivational mechanisms (i.e., utility, diagnosing problems, transforming resistance, interest generation). When interpreting the significance of promoting independent thinking, students in our study focused on how well a teacher was able to transform student resistance into what could be considered high-stakes, high-participation situations (e.g., generating and evaluating individual student thinking) and productively diagnose issues to keep students on track and progressing. Furthermore, students endorsed promoting independent thinking clips by expressing their interest and enjoyment in engaging with cognitively challenging tasks.

Though student responses to promoting independent-thinking clips aligned with theoretical perspectives, our results also suggested that students’ perceptions of promoting independent thinking were related to the social or relational climate of the classroom. Promoting independent thinking may be perceived as autonomy-supportive only in nonthreatening contexts. On the other hand, teacher behaviors that appear autonomy-supportive from an outsider’s observation may actually be experienced as stressful when enacted in a classroom context where students risk being criticized or ridiculed. In other words, students may interpret the significance of autonomy-supportive teacher behaviors in relation to their perceptions of risk or stress in the context of a particular classroom. This may suggest that theoretical perspectives of challenge (see for example, Reeve, 2006) may need to be refined to articulate within what conditions and for whom challenge may (or may not) nurture inner motivational resources.

Contrary to promoting independent thinking, providing choice did not elicit significance statements as expected. The provision of choice in the classrooms we studied appeared to have a more complex value than of simply kindling interest, enjoyment, or liking of a task. Students in our study interpreted teachers actions during the provision of choice as productively facilitating their work or learning, in general, rather than enhancing interest and enjoyment in a particular task. The provision of choice was most frequently interpreted as a means to realize or develop skills for future goals. In other words, students interpreted the significance of providing choice as evidence of teachers global investment in their long-term learning.

Moreover, students interpreted teachers provision of choice as acknowledgment and acceptance of students as individuals with different skills and talents. Student interpretations revealed that the provision of choice communicated broader messages about respect and positioning students as active, increasingly independent learners, thus, reinforcing narratives of personal adequacy or competence. From our analyses, the provision of choice was not superficial in these classrooms; choice was not simply about selecting preferences but about the developmental process of becoming autonomous learners. Choice as provided in these classrooms afforded students practice in making decisions about how to do their work and opportunities to evaluate individual work preferences. While providing choice is often theorized as being related to interest (see for example, Assor, 2012), the strategy may also construct spaces for students to exercise decision-making skills in support of their own learning about themselves as students.

Unlike promoting independent thinking or providing choice, demonstrating flexibility activated students' interpretations of teacher characteristics instead of teacher behavior, such that "flexibility" was discussed as a trait-like quality possessed by their teachers. Also, affective states associated with comfort and safety—rather than interest and enjoyment—were mentioned. In demonstrating-flexibility clips that did not have independent thinking or choice elements, students noted the quality and stability of interpersonal connections in the classroom. In response to demonstrating-flexibility clips, negative emotions were also identified as present but productively managed by the teacher, which engendered students' beliefs that the teacher cared about them as learners. This may suggest that in these classroom contexts, demonstrating flexibility is almost exclusively construed relationally and possibly informs students' perceptions of what type of person their teacher is relative to other adults they encounter in the school setting.

The findings of the current study should be considered in terms of several limitations. First, the small sample size of this study limited our ability to make important comparisons such as between grade levels and across content areas. Future research with larger sample sizes could make important contributions in regard to how normative adolescent development or content pedagogy intersects with the validated autonomy-support practices studied here. Additionally, we have direct information on how students respond to their own teachers behavior. Such a design, however, does not permit cleanly parsing out the relational or social factors of interest. Having an independent sample of matched students discuss the video clips shown to the participants in this study would help address this potential design limitation. Second, videotaping the focus group discussions would facilitate analysis beyond typical content analysis. Protocol and moderator instructions could embed strategies to assist with the identification of the speaker, such as instructing the moderator to ask members of the group their names and then to describe themselves in a few sentences at the start of the focus group. Then transcripts could be produced that track individual speakers, thus facilitating an additional coding cycle to apply group interaction codes to the transcripts to identify what gets "taken up" by the group and discussed and what is ignored or silenced. Such analytic attention to group interaction would provide data on dominant worldviews, contradictions, alliances, individual interests, and so forth, to explore individual differences as sources of variation in understanding adolescent student perspectives. Lastly, we did not make a distinction between the "type" of engagement and "quality" of engagement. Future studies can make additional contributions by investigating how and why types of autonomy support link to particular types of engagement in separate and interconnected ways.

## Conclusions

In this study, minimally edited videos of instructional segments were used to identify autonomy-supportive instructional interactions and to generate new data through cuing responses from students. The cued-video response method combines observational information, based on research-derived conceptual frameworks, and adolescent interpretations in the form of transcripts of discussion. This method theoretically and empirically bridges teacher behaviors identified as theoretically autonomy-supportive with students' indigenous perceptions and values. As such, the cued-video-response method advances understandings about how teachers' autonomy support may influence students' motivation to learn.

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## Appendix A

Ms. Adams was a fifth-grade science teacher. The format of her lessons varied depending on the content and activity of the day; lessons included a digital slide presentation on the scientific method, hands-on mock experiments, and a video related to nutrition and disease. Students sat in table groups of four or five and generally worked alone or in pairs. At times, students were given the choice to work in different areas of the room.

Ms. Ball was a fifth-grade math teacher. The format of her lessons typically involved solving warm-up math problems at the beginning of class, taking notes and answering questions during lecture, and practicing problems on a worksheet. Students sat in rows of two and mostly worked independently. Sometimes, students rotated in groups through three stations: focused help time, independent work time, and leisure time.

Ms. Cole was an eighth-grade ELA teacher. The format of her lessons varied depending on the content and activity of the day; students independently worked through a weekly list of assignments and projects at their own pace, discussed chapters of a book in a large group, or worked on a task in small groups. Students were often given opportunities in deciding the how, when, and where of completing tasks or assignments.

Ms. Drake was a fifth-grade ELA teacher. The format of her lessons generally involved the teacher walking through the goals and activity of the day and students reading, digesting, and writing responses to chapters of a book or a reading text. Students sat in three large groups of tables arranged in long rows. Students were often given the choice to work independently, in pairs, or small groups and could choose a place in the room to complete their work.

Ms. Ellis was sixth-grade math teacher. The format of her lessons generally involved an introduction to the topic or task of the day, problem solving in groups, and sharing different solution strategies as a

whole class. Students sat in table groups of four or five and worked extensively in groups. In groups, students were expected to generate strategies building on what they had learned previously.

Ms. Fleming was a fourth-grade ELA teacher. The format of her lessons varied depending on the content and activity of the day, but students were often gathered on the floor at the front of the room, listening and participating in a teacher-guided lecture or discussion related to a reading or text structures. Students also worked independently on tasks in table groups of four or five.