Flow Theory and Student Engagement

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Most teachers across America would agree that the student who is engaged in school is more likely to be academically successful and successful as an adult later in life. In fact, research regarding student engagement has shown that increases in student engagement are correlated to increases in positive student learning outcomes (Appelton, Christenson, Kim, & Reschly, 2006; Nystrand & Gamoran, 1989) such as higher GPA, more credits earned in high school, higher attendance rates, and higher classroom participation (Appelton et al., 2006). While the relationship between student engagement and positive learning outcomes is not new to educators, understanding how to keep students engaged in the classroom is still an on-going concern. Regardless of the debate, educators generally agree that they must create learning environments that are challenging
for *all* students, and in which students want to learn and feel good about learning. Flow Theory, though largely undiscovered by educators, was developed by Csikszentmihalyi (1990) as a theoretical perspective of student learning that integrated cognition, motivation, and emotion. While not a theory of student engagement, application of flow theory in classrooms will help teachers create learning environments in which there is an increase in student engagement.

Positive Psychology

Flow theory has its historical roots in positive psychology, a perspective originated in the humanistic approach to psychology which began in the mid-1950s. Positive psychology focuses on the nurturance of intrinsic strengths and on the potential of human beings rather than on the pathology of mental illness. As such,
positive psychology is "the study of positive emotion, positive character, and positive institutions" (Seligman & Csikszentmihalyi, 2001).

In the 1950s, positive psychologists such as Rogers and Maslow believed that human beings were intrinsically motivated to reach their highest potential and were not merely reacting to stimuli or reinforcement as the behaviorists believed. This meant that individuals held much more control over what they did and what they thought than previously held. People were not just victims of their environments. As this movement developed, Erickson deepened our understanding of developmental emotional growth in the 1960s; Deci and Ryan, in the 1970s, broadened the idea of self-determination through intrinsic reward mechanisms; and Ryff and Singer, in the 1980s, examined the role of emotional health and its impact on physical well-being (Seligman, Steen, Park, & Peterson, 2005).

Personal Background

Csikszentmihalyi's life growing up as a young child in worn-torn Eastern Europe during the 1940s became a formative experience for him that later, coupled with his studies of positive psychology, would produce the theory of flow. As a child, Csikszentmihalyi witnessed the destruction of homes, the loss of jobs and wealth, the upheaval of a once stable society, and the death of people in his community (Seligman & Csikszentmihalyi, 2000). He also noticed, however, that some individuals were able to adjust and attain a sense of well-being or happiness while others could find no solace in their changed condition. It fascinated him that some people, despite their personal losses, were able to feel happiness while others could not. It was this personal experience, tied to his interest in positive psychology, that lead Csikszentmihalyi to study happiness as a positive, personal state of being and, subsequently, produced the theory of flow.

Flow Theory

Csikszentmihalyi was originally interested in examining the subjective, positive feeling of happiness. He defined happiness as not being bored on the one hand but not feeling anxiety on the other when confronted with a task, job, or other activity (Csikszentmihalyi, 1990). Csikszentmihalyi became fascinated with the state of being happy, and in particular, peak moments of happiness. He defined these peak moments or "optimal experiences" as

> times when, instead of being buffeted by anonymous forces, we do feel in control of our action, masters of our own fate. On the rare occasions that it happens, we feel a sense of exhilaration, a deep sense of enjoyment that is long cherished and that becomes a landmark in memory for what life should be like. (p.3)

Examples of moments when individuals have felt most in control of their physical actions or mental activities are ones in which they have wanted to attain and ones that required effort to attain (p. 3). Csikszentmihalyi (1990) offers a few examples.

> For a child, it [best moments] could be placing with trembling fingers the last block on a tower she has built, higher than any she has built so far; for a swimmer, it could be trying to beat his won record; for a violinist, mastering an intricate musical passage (p. 3).

Csikszentmihalyi posited his ideas after studying, initially qualitatively, how artists felt while engaged in the act of creating their art. Later, he examined athletes, chess players, rock climbers, composers and dancers to obtain quantitative data. Participants used beeper-like mechanisms to respond to prompts at intervals. When prompted, subjects self-reported on the tasks that they were involved in, ranking the degree of their feelings, their interest in, the challenge of, their enjoyment of, their control of, the degree of concentration required, and the degree of exploration required of the task at hand (Smith, 2005). From these data, he formulated his theory of flow:

> a theory of optimal experience based on the concept of flow – the state in which people are so involved in an activity that nothing else seems to matter; the experience itself is so enjoyable that people will do it even at great cost, for the sheer sake of doing it. (Csikszentmihalyi, 1990, p. 4)

The term flow refers to an optimal state of immersed concentration in which attention is centered, distractions are minimized, and the subject enjoys an autonomous interaction with the activity (Whalen, 1999). People in a state of flow report a disassociation with time, a lack of recognition of hunger or fatigue, and they report that their skills are well matched to the requirements of the task (Whalen, 1999).

Attaining Flow

Csikszentmihalyi (1990) identified seven characteristics of flow, but it is the first four which directly impact student engagement, and, thus, are a focus in this section of the paper. The four key characteristics that directly impact student engagement and can inform classroom instructional practices are:

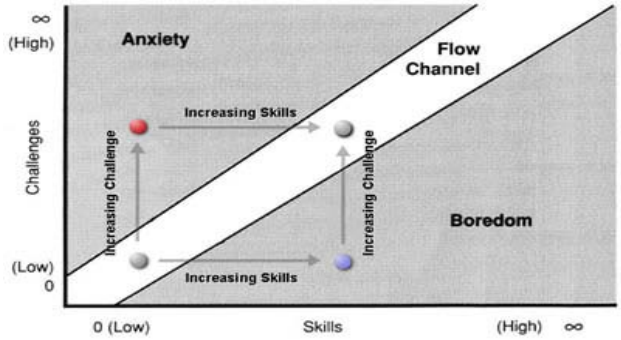
- A challenging activity that requires skills
- Merging of action and awareness
- Concentration on the task at hand
- Clear goals and feedback
- Paradox of control
- The loss of self-consciousness
- The transformation of time (pp 48-59).

A Challenging Activity That Requires Skills

The challenge for classroom leaders is identifying for students that "boundary between boredom and anxiety, when the challenges are just balanced with the person's capacity to act" (p. 52) by matching a student's skills and challenge level. To do this, a teacher may need to increase the challenge level of a learning task to meet the individual's high skills (and avoid boredom), or, conversely, the teacher may need to increase the

skills of an individual to meet new challenges (to avoid anxiety). Of course, decreasing the challenge of the task to meet the acquired skills is also an option. The diagram below graphically presents this relationship.

Flow Theory Figure 1



For many educators, this basic concept of matching skills to the challenge of the activity is not new. In fact, when teachers use 'optimal mismatches' and scaffolding in their instructional practices today, they are trying to help students develop their skills further by accepting new challenges in incremental learning steps (Joyce et al., 2004). In education theory, all unit lessons should include optimal mismatches as learning experiences for students (Joyce et al., 2004) to engage the student in academic exercises at a skill level and challenge level that is appropriate for each student.

Flow Theory incorporates the idea of matching skills to challenge level such that the student does not remain bored on the one hand, and does not get pushed into feeling anxiety on the other. This part of the process in achieving flow emphasizes the cognitive domain for students as they apply skills or learn new ones faced with challenging activities. Bloom's Taxonomy of Educational Objectives is one way of understanding the cognitive domain. While the emphasis may be on the cognitive aspect of learning, creating matches between skills and challenge level also offers an intrinsic motivation to learn since students are working within an emotional state of well-being, not bored and not anxious (Csikszenmihaly, 1990). "With all our cognitive theory, we would expect students to want to learn…" (Ornstein & Hunkins, 2004, p. 124). Hence, creating a challenging activity that requires skill increases student engagement by involving the student both cognitively and motivationally with his task.

Merging of Action and Awareness, and Concentration on the Task at Hand

As a student focuses on the academic task, he becomes very aware of that one task, and is not likely to be easily distracted from that task creating a learning environment for students to become naturally engaged with their school work. Csikszenmihaly (1990) explains it as follows:

> When all a person's relevant skills are needed to cope with the challenges of a situation, that person's attention is completely absorbed by the activity. There is no excess psychic energy left over to process any information but what the activity offers. All the attention
> is concentrated on the relevant stimuli (p. 53)

If we want our students to become engaged with learning tasks, we must prepare them with the skills necessary to meet the challenge. Forcing them to work outside their skill level or outside their ability to meet the challenge will frustrate both the precocious learner and the developing learner. In addition, the learner is more likely to be distracted by outside stimuli as he has not fully invested his energy at the task at hand since that learning experience is not very friendly (Csikszenmihalyi, 1990).

Clear Goals and Feedback

Students should develop goals that are clear and attainable (Csikszenmihalyi, 1990; Goslin, 2003). These goals are not generic among a roomful of students; rather, each individual student must develop his or her goals (Csikszenmihalyi, 1990; Goslin, 2003). This goal setting must be tied to each student's relative skill and ability level (Csikszentmihalyi, 1990). In the classroom, students must have clear goals for their learning task to be meaningful to them. Teachers can help students develop short-term goals that "are supported by specific task-related goals" (Goslin, 2003 p. 74);

these short-term goals will help students achieve long-term goals such as going to college. As students make "progress towards achieving these goals" (p. 74), they find it rewarding, resulting in the development of a student's intrinsic motivation to complete activities (Csikszentmihalyi, 1990; Goslin, 2003).

Establishing student goals and providing effective feedback work together. "Regular and frequent feedback to students on their progress is an integral part of every learning environment" (Goslin, 2003) although the frequency of feedback needed is less well defined (Csikszentmihalyi, 1990). Without timely feedback, whether by informal or formal assessment of progress, students may lose interest in completing the task (understanding grammar in writing) as a short term goal, or lose sight of a higher goal in the near future (writing an essay for college admissions).

In Flow Theory, the establishment of goals and opportunity for feedback is almost essential to achieve an optimal experience. For individuals who experience flow, "goals are usually clear, and feedback immediate" (Chikszentmihalyi, 1990). Essentially, establishing goals and providing feedback offer students the intrinsic motivation needed to complete an activity.

Traditional Perspectives of Student Engagement

"The words that come readily to mind when we try to describe engagement in learning involve the investment of energy or effort on the part of the learner. They include paying attention, listening, concentrating, trying to remember, mentally rehearsing, thinking, and practicing" (Goslin, 2003, p. 13). This traditional perspective of student engagement has resulted in traditional methods of measuring student engagement that are commonly known as time on task. Examples of time on task behaviors include observing students reading, raising a hand, and following directions (Spanjers et al., 2008). Students who spend their time on task are determined to be engaged in their work. Consider the following quote by Goslin (2003) on student engagement:

> the amount of time a learner can spend on any particular learning task is of critical importance. 'Time on task' is directly related to all measures of achievement and even the most motivated and engaged students will not succeed in learning if he or she is unable to spend the time necessary for learning to occur (p.30).

By this description, student engagement is assessed more as a *quantity of time* spent on different learning activities, rather than a *quality of time* spent on these same activities. Flow theory, conversely, is more concerned about the quality of how time is spent on tasks. To gain this information, Csikszentmihalyi (1984) adopted the method of asking the students to self-report what they were thinking and feeling during the learning process.

The level of student engagement that would be required to keep students interested in learning is not easily attainable by just the observation of student behaviors in class. In fact, engagement is a complex construct that is better understood by asking students questions about their learning experience than merely relying on time on task behaviors to provide a meaningful understanding of student engagement (Appelton et al., 2006; Nystrand & Gamoran, 1991; Spanjers et al., 2008). As a result, a student who is determined to be engaged in the traditional understanding of the word, may not always be engaged by Csikszentmihalyi's definition.

Research From Inside the Classroom

Chikszentmihaly's theory of flow is student centered and offers a unique alternative to the traditional classroom perspective of student engagement. Is this a theory that can be actualized in the classroom to effect a change in how students feel about their educational experience to ultimately keep students engaged in this process, to reach graduation, and to move on to secure their potential? We offer an examination of three studies that examine the applicability of this construct in the classroom.

Longitudinal Study

Shernoff, Csikszentmihalyi, Schneider, and Shernoff (2003) conducted a longitudinal study of 564 high school students across the nation using Csikszentmihalyi's Experience
Sampling method (electronic pager) to assess how challenge, skill, and challenge/skill conditions affected student engagement, attention, and quality of experience. They found that over 60% of
instructional time involved non-interactive activities and that student perception of control and relevance of the activity appeared to be important contributors to student engagement. The findings of this study indicated that teachers may be able to encourage engagement in the learning experience by offering more tasks which invite student choice that is reflective
of their own personal goals. It was also found that students reported feeling higher self-esteem, and a more positive mood when experiencing higher levels of control over situations. This finding underscores our earlier claim that establishing individual goals and providing feedback creates the motivational energy to complete the task.

Results from this study support the inclusion of activities into a teacher's instructional pedagogy that are academically intense and match student skill to task through an adaptive instruction that reflects developmental levels and individual interests (Shernoff et al., 2003.).

English Class

A study conducted by Beveridge and Milner (2006) examined a high school English classroom instructional behavior to determine what characteristics of flow were observed during instructional time. Specifically, Beveridge and Milner were observing for those characteristics which increased student engagement. For example, activities which were highly student centered demanded a higher degree of student concentration. Beveridge identified such activities as group work, individual seat work, writing activities, independent reading, and tests/quizzes as student-centered and therefore requiring a greater degree of concentration and student control. Low level activities were identified as watching films, listening to lectures, class discussions and reading aloud. Of the 114 classroom activities that he observed, only 40 (35.1%) were student-centered. The majority were teacher centered.

Beveridge and Milner (2006) found that students who were challenged and in control of their learning were more focused and had a more valuable learning experience. They concluded that instruction should be challenging but not unrealistic, that teachers needed to be aware of students' skill base, and lessons needed to be relevant. They also recommended that anxiety could be reduced by creating classrooms that were inviting of new ideas and guidelines where expectations were clearly stated and understood (Beveridge & Milner, 2006). Again, this further supports Csikszentmihalyi's call for learning environments which include an appropriate alignment between skill base and task, activities which require concentration, and individualized goals and immediate feedback were clear.

Science Class

Boyer also conducted a classroom study of flow as an intern for a 7th grade science class. He wanted to identify what he termed pathways and blockages to flow in the classroom. Using field notes, lesson plans, student surveys, and interviews, he examined the responses of 93 students over a three-month period. He found that only a third of the students reported symptoms of flow while over half exhibited daily anxiety related to school work. He also found that 68% of his participants were facing challenges too great for their skill base or they were faced by challenges that did not require the level of skills they had already attained.

Boyer also found that many of the prerequisites for attaining flow were not a part of the student's classroom experience. For example, students frequently reported that they were unsure of what was expected of them, how they were to complete a task, and what they were to learn from the educational experience. Feedback on activities was not immediate enough. There was no opportunity for students to be involved in student-centered activities which would have contributed a sense of student control over learning. There was little

opportunity for movement in the classroom, and a lack of enough hands–on activities. The learning environments were rarely free from distractions and this was most cited by students as a deterrent to sustained attention. The instructional activities within this classroom were not adapted to be reflective of the student skill base and consequently, action and awareness of task did not demand the concentration to complete them, and motivation – the emotional response – was realized as anxiety, culminating in shutdown.

Key Learning Community School

Our final examination reviews a report by Whalen and Csikszentmihalyi (1991) submitted to the Benton Center for Curriculum and Instruction at the University of Chicago. Whalen and Csikszentmihalyi describe the particular aspects of the Flow Activities Room at the Key Learning Community School in Indianapolis, Indiana, and how these characteristics affect student learning. The Flow Activities Room allowed students to spend three or four class periods a week in an orderly, but unstructured environment where the students could freely move in and out of different activities. The purpose of the Flow Activities Room was to provide an environment where students could explore their potentialities and, perhaps most importantly, feel the intrinsic rewards of learning which would hopefully generalize to their other more structured classes. Characteristics of the Flow Activities Room were described as: orderliness, a degree of choice given to students, diversity of activities, an atmosphere of challenge and concentration, and a balance between respect for rules and student choice. The interview and questionnaires that were conducted by Whalen and Csikszentmihalyi indicated that intensified play can be a learning
experience, choice provides opportunity to clarify interests, game playing provides opportunities for practicing process-oriented skills and developing sustained attention.

Other Considerations of Flow Theory

Schweninle, Meyer, and Turner (2006) wanted to understand the relationship of student affect and motivation better. They studied the relationship between students' affect and motivation. Student affect refers to "the social and psychological factors of learning" (Ornstein & Hunkins, 2004, p. 127). Schools must provide learning environments in which students feel "a sense of power, fulfillment, and importance in the classroom" (p. 127). Although the authors agree that if students are bored or feel anxiety they are less likely to be intrinsically motivated to learn, they also found that focusing on striking the optimal balance of skills level and challenge of task does not fully explain a student's motivation to learn. Schweinle et al. (2006) found that an increase in challenge level was associated with positive affect only where students perceived the importance of the task as valuable to them. In fact, where students did not perceive the task as important, an increase in challenge level was negatively correlated with a student's social and personal affect. In classrooms where students do not feel that the lesson is fulfilling or important, they are less likely to engage in the learning process (Ornstein & Hunkins, 2004). Ultimately, this study found that student perception of the importance of the task was a better indicator of student motivation to learn than was the level of challenge of a task.

Furthermore, the study by Schweinle et al. (2006) found "children perceived challenge as a threat to efficacy" (p. 278) even among children who were considered high ability learners and reported high efficacy. As a result, "students value tasks at which they believe that they can succeed (perhaps tasks in which skills outweigh challenges), not the most challenging ones" (p. 278). This finding seems to counter the claim in flow theory that students will find intrinsic motivation to learn if the challenge level is matched to student skill level.

Discussion of Scheweinle Study

Schweinle et al. (2006) seem to suggest that students need to perceive the task as important to them before they feel that the learning is worthwhile, to make the effort at completing the challenge. Flow theory, on the other hand, seems to state that matching skill ability and challenge level will allow

students to find that all their "relevant skills are needed to cope with the challenges of the a situation" (Csikszentmihalyi, 1990) providing them with the environment necessary to keep them from distraction, boredom, or anxiety. Csikszentmihalyi (1984) acknowledged that "Good moods and good grades go together in school" (p. 205). Schweinle et al. (2006) do not disagree with this statement, but they did find that "motivation and affect are experienced together" (p. 288) so that manipulating skills and challenge alone, a cognitive task, will not necessarily produce intrinsic motivation to learn. In addition, the study by Schweinle et al. (2006) indicates that student perception of ability and challenge is important to their feelings of efficacy and positive affect, not just the teacher's perception of a student's skills and ability.

Instead of negating Flow Theory, the study by Schweinle et al. (2006) may only demonstrate the important relationship between the cognitive and affective domains. It seems wise to think about the learning environment and its impact on student personal or social affect before instruction into content area is undertaken. Do students feel comfortable asking questions in class? Are students ridiculed or punished for providing the wrong answer? These are important questions to ask before a teacher tries to engage students with a cognitive task in the classroom (Ornstein & Hunkins, 2004). However, only asking students to perform at a cognitive level where they feel they can already succeed or with content that is already relevant to them may not produce increasing learning skills for the student. Further research into how students cope with challenging tasks and the impact on their cognitive abilities and affect in the long run—not just at the moment of learning—may shed more light on how students learn.

In summary, the characteristics of flow can be implemented in the classroom. The classroom must be orderly and rules and expectations must be clear. By allowing students an opportunity to participate in choosing what they will learn and how they will learn it (for example group work), positive emotional bonds can be formed. Through consistent and individualized incremental skill-based assessment (feedback), teachers can match required skill to task to assuage anxiety and prevent boredom. Challenging appropriate tasks, clear expectations, feedback, and emotional memories of success will motivate our students to return to the learning process repeatedly as life-long learners.

Implications of Flow Theory for Educational Leaders

As presented earlier, central to Csikszentmihalyi's flow theory is the humanistic approach to behavior which posits that human beings strive to be fulfilled and move towards that which supports growth and achieving potential. Gardner stated that

> Life requires unrelenting effort, a willingness to try – and contrary to widely held conceptions, humans are well fitted for the effort. In humans, the long process of evolution has produced a species of problem solvers, happiest when engaged in tasks that require not only physical effort but also the engagement of mind and heart. We are not only problem solvers but problem seekers. If a suitable problem is not at hand, we invent one. Most games are invented problems. We are designed for the climb, not for taking our ease, either in the valley or at the summit. (as cited in Caouette, 1995, p. 195)

The craft of teaching is an unrelenting arena of problems that need to be solved and these problems truly engage the mind and the heart of the teacher. The task then for educational leaders, is to provide an environment whereby teachers can attain flow – attain enjoyment. Enjoyment in the work place is successful achievement of the goal which is student learning (Basom & Frase, 1998) from tasks that require an engagement of the heart and mind which are just a bit beyond skill level and yet are attained. What leadership practices have been found to support this phenomenon of flow in the school building and then transfer into the classroom?

Work has been conducted in this area – albeit limited. Caouette (1995) in her unpublished dissertation which deeply examined the flow experiences of six teachers found several key elements which she characterized as *critical conditions* for the flow experience to be enabled within the teaching and learning environment. She

found that work conditions had to address three core dimensions:

1. A balance of challenge and skill that can be carried out and controlled.
   Included: teaching assignments and lesson development; professional development to enhance skill development; teacher evaluation – frequent administrative walk-throughs

2. Clear structure and goals.
   Included: professionalism, collegiality, time management

3. Immediate and relevant feedback for the individual
   Included: extensive planning time – shared, communication and shared decisions

Caouette invited educational leaders to create a culture of trust and safety whereby teachers feel comfortable taking risks as they implement responsive pedagogy. This culture of trust allows teachers to continually push beyond their own known boundaries and reach their professional potential. Without this foundation of trust, effort will not be made to solve new problems. Additionally, she admonished educational leaders to know their teachers and their abilities to anticipate and appropriately place teachers in the most engaging teaching assignments. A common practice of placing novice teachers with the most needy students (academically or emotionally) can prove so assaultive that the new teachers may, and very often, do not return (Public Agenda, 2000).

Her participants indicated that clear goals and structure must be in place as well. Specifically, a culture of mission must be shared and policies and follow up procedures must be consistently applied most especially as regards consistent enforcement of teacher and student behavioral expectations. When an inconsistency exists within these parameters, a diminished energy flow, or a cessation of energy results in negative attitudes among staff members and does not translate into the classroom arena.

Basom and Frase (2004) further support these findings with a cogent description of strategies for building environments conducive to teacher flow experiences:

- Consistent classroom visits by educational leaders. Additionally, Eisner (as cited in Basom and Frase,2004) recommends that principals should spend approximately one third of their time in the classroom.
- Minimize instructional interruptions: bells, announcements, and interruptions form outside agencies.
- Professional development on the design of high-quality curricula.
- Professional development on instruction.
- Ensure that the teachers' work environment is conducive to continued development and growth towards accomplishment.
- Provide well-designed mentoring and induction programs.
- Provide time for teachers to discuss, analyze, and reflect on classroom failures and successes – not unlike a military debriefing or medical personnel consultations.

Educational leaders must philosophically embrace a systemic commitment to the underlying principal put forth by Csikszentmihalyi that presents the possibility of the life of work as an enjoyable experience that we are all driven to attain.

Conclusion

Csikszenthihalyi's Theory of Flow can change educators' perspective about the meaning of student engagement. In Flow Theory, it is important to understand what the child is thinking, not just what the child is doing from an outside observer's perspective. Student engagement can be impacted by increasing the relevancy of tasks, adopting student centered methods of teaching, providing timely and appropriate feedback, and creating positive learning environments. Flow Theory allows educators to think differently about student engagement. It forces educators to think about engagement as a complex construct that includes cognition, motivation and emotion, not just simple as simple time on task behaviors. Attaining flow, or

coming near to attaining flow, may increase the positive learning outcomes associated with increased student engagement such as lower high school drop-out rates, a narrowing of the achievement gap between whites and minorities, and increased GPA averages.

It is possible for teachers to provide instruction and a classroom environment that provides students the opportunity to reach optimal learning experiences. Teachers need to provide a task that is challenging to the students, a task that can be completed with the skills learned. Students need to be able to apply their skills to a challenging activity in such a way that the student's concentration and focus is on the activity so that minor distractions in a classroom of students will not prove to be distracting. Teachers need to help students develop goals to make the learning process more relevant to them, and teachers need to provide timely and meaningful feedback to students if they want students to stay engaged with a learning activity. Establishing a classroom culture and climate that encourages a positive personal and social affect among all students is important to instruction before the lesson even begins but is important throughout the lesson. Classroom instruction that actively engages the student such as tasks that require collaborative participation or instruction that encourages the student to problem solve may increase a student's chance of finding flow—or come near to it.

Finally, educational leaders are ultimately charged with implementing certain organizational procedures which have supported teacher flow such as participating in consistent classroom visits and sharing feedback, minimizing distractions to the instructional environment, providing time for collaborative reflection, timely professional development opportunities reflective of teacher skill needs, and clear structure and goals (Caouette, 1995; Basom & Frase, 2004). This is an alternative to the traditional view of the schoolhouse and the workplace which can perhaps breathe life into our hearts as teachers and purpose in our students as they strive for academic excellence.

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