Motivation, Learning and Well-being: Research and Practice Using Self-Determination Theory

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SDT: Some Basic Research Areas

- Intrinsic Motivation
- Internalization
- Individual Differences in Motivation
- Well Being
- Culture and Gender Differences
- Intrinsic and Extrinsic Life Goals
- Energy and Vitality
- Mindfulness
- Neuropsychology of Motivation and Autonomy
**SDT Applied Research**

**Educational Practice and School Reform**
- Parenting and Effective Socialization
- Health Care: Behavior and Adherence
- Exercise and Physical Activity Motivation
- Sport Motivation and Performance

**Psychotherapy and Counseling**
- Organizational Behavior and Work Performance
- Religious Internalization and Motivation
- Virtual Environments and Video Games
What do people really need to flourish?
It’s in our “nature” to flourish

- To flourish is to develop, to become both more differentiated and integrated, and to become more fully functioning
- But it is by no means automatic
- It requires nutriments
Can we provide this....

within a pressured and competitive world......?
**Need:** Something essential to a living entity’s growth, integrity and well-being

- when deprived of needs, entity shows evidence of stagnation, degradation or harm
- when satisfied, evidence of thriving

**Basic Psychological Needs:** Essential for psychological and cognitive growth and wellness

- natural rather than acquired
- universal rather than culturally specific
- not necessarily consciously valued or pursued
Basic Psychological Needs Underlying Optimal Motivation and Well Being

- Autonomy
- Competence
- Relatedness

Optimal Motivation, Well-Being
SDT’s Three Basic Needs

**Autonomy**
- Behavior in accord with abiding values and interests; actions are self-endorsed; opposite is heteronomy, not dependence

**Competence**
- Sense of effectance & competence in one’s context

**Relatedness**
- Feeling cared for, connected to, sense of belonging with others
Autonomy as Self-Regulation

- Philosophical Perspectives:
  - Phenomenal view (e.g., Pfander, Ricoeur)
  - Analytical view (e.g., Frankfurt; Dworkin; Friedman)
  - Chinese view (e.g., Chung, Lo)

- Reflected within Psychological Theories
  - Heider (1958)
  - De Charms (1968)
  - SDT (Deci & Ryan, 1985)
What autonomy is not

• It is not independence

• It is not about individualism or separateness

• It does not require an absence of external norms, inputs or demands, but rather an authentic willingness to follow them
What is intrinsic motivation?

- IM is doing something because of the inherent satisfactions the activity yields

- Children’s play is a prototype of intrinsic motivation

- IM continues across the lifespan as an important impetus to learning and revitalization
Intrinsic Motivation and Learning

• Most learning is by nature intrinsically motivated; it is a deeply evolved basis of cognitive growth

• Learning through interested activity results in true assimilation

• There is a well documented trend of decreasing intrinsic motivation as children are exposed to traditional schooling

“a great deal of mentation, at all developmental levels, is intrinsically rather than extrinsically motivated”

(Flavell, Miller & Miller, 2002, p. 66)
Factors Associated with the Facilitation of Intrinsic Motivation

Autonomy (supports for volition, IPLOC)

Competence (Optimal Challenge; Positive Feedback)

Relatedness (Security of Attachment)

Intrinsic Motivation
### Conditions that Facilitate Intrinsic Motivation

#### Autonomy-Relevant
- Absence of Pressure
- Goal Choice
- Strategy Choice
- Promotion of Task Interest

#### Competence-Relevant
- Optimal Challenge
- Pos. Feedback
- Informational Rewards

#### Relatedness-Relevant
- Empathy
- Warmth
- Acknowledgement of Feelings

### Conditions that Undermine Intrinsic Motivation

#### Autonomy-Relevant
- Pressure toward Outcomes
- Punishment contingencies
- Goal Imposition
- Deadlines
- Controlling rewards
- Ego-involvement
- Surveillance

#### Competence-Relevant
- Non-Optimal Challenges
- Negative Feedback

#### Relatedness-Relevant
- “Cold” Interactions
- Lack of Positive Involvement
The Risk of Rewards

The use of tangible rewards to motivate learning runs a serious risk of decreasing intrinsic motivation even though rewards can motivate specific behaviors.
Effects of Rewards on Free-Choice Behavior

The Undermining Effect: Deactivation of Bilateral Striatum as a Function of Rewards in Subsequent Performance
Right LPFC Changes During Reward and Post-Reward Sessions

Fig. 4. Right LPFC activation (peak at 39, 41, 40) detected in the session-by-group interaction during the task cue period (P < 0.05, small-volume-corrected; image is shown at P < 0.001, uncorrected for display). Neural responses are displayed in transaxial and coronal formats. The bar plot represents mean contrast values and SEs for each session/group. During the first session, the LPFC in the reward group showed significantly larger activation than that in the control group (two-sample t_{50} = 2.62, P < 0.05). However, the activation became significantly smaller in the reward group than in the control group during the second session (two-sample t_{50} = 2.27, P < 0.05).
But in more typical situations, not all students receive rewards......

When all students got the offered rewards -0.36

When students got less than maximal rewards -0.88

When some students got no rewards -0.95

numbers are Cohen’s $d$ effect size, all are significant from Deci, Koestner, & Ryan (1999)
Relations of Teachers’ Orientations (autonomy-supportive vs. controlling) to Students’ Intrinsic Motivation and Self-perceptions

<table>
<thead>
<tr>
<th>Teachers’ Autonomy Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intrinsic Motivation</strong></td>
</tr>
<tr>
<td>Preference for Challenge</td>
</tr>
<tr>
<td>Curiosity</td>
</tr>
<tr>
<td>Mastery attempts</td>
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<tr>
<td><strong>Perceived Competence</strong></td>
</tr>
<tr>
<td>Cognitive competence</td>
</tr>
<tr>
<td>Global competence (self-worth)</td>
</tr>
</tbody>
</table>
Teacher Autonomy Support and Control in a South Korean High School Sample

Jang, Reeve, Ryan, & Kim, 2009, Journal of Educational Psychology
Daily Fluctuations in Two Students’ Interest in the Same Class

Days

Pupil A

Pupil B

Classroom Mean

Daily Interest
## Predicting Learners’ Interest Experience

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Mathematics</th>
<th>German</th>
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<td><strong>Between-student level</strong></td>
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<tr>
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<td>.23***</td>
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</table>

*Note.* $B$ unstandardized regression coefficient resulting from HLM analyses. ** $p$ .01. *** $p$ .001.

Intrinsic Motivation: To act for the inherent satisfactions of activity

Extrinsic Motivation: To act in order to obtain or achieve some separable outcome

Intrinsic & Extrinsic Motivation

**REGULATORY STYLES:**

- Amotivation
- Extrinsic motivation
- Intrinsic motivation

**ASSOCIATED PROCESSES:**

- **External regulation**
  - Perceived non-contingency
  - Salience of extrinsic rewards or punishments
  - Compliance/Reactance

- **Introjection**
  - Ego involvement
  - Focus on approval from self and others

- **Identification**
  - Conscious valuing of activity
  - Self-endorsement of goals

- **Integration**
  - Hierarchical synthesis of goals
  - Congruence

**PERCEIVED LOCUS OF CAUSALITY:**

- **Impersonal**
  - Ego involvement
  - Focus on approval from self and others

- **External**
  - Somewhat external
  - Somewhat internal

- **Internal**
  - Interest & Enjoyment
  - Inherent satisfaction

From: Ryan & Deci (2000)
### Correlations Among ASRQ Subscales for 3 Diverse Elementary School Samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>External</th>
<th>Introjected</th>
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*Note.* *p* < .05, **p* < .01, ***p* < .001
Correlations Among Autonomy Subscales in Japanese Elementary Students

<table>
<thead>
<tr>
<th>Subscales</th>
<th>External</th>
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Note. *** p < .001

From: Yamauchi & Tanaka (1998)
## Relations between Motives and Japanese Elementary Students' Academic Goals, Values, & Learning Strategies

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<tr>
<th>Subscales</th>
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<td>.33***</td>
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<td>Deep Process</td>
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*Note. * $p < .05$, ** $p < .01$, *** $p < .001$; Yamauchi & Tanaka (1998)*
Predicting Engagement & Emotions from Relative Autonomy

<table>
<thead>
<tr>
<th>Engagement Variable</th>
<th>Predictor Variable</th>
<th>$\beta$</th>
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<td>Curiosity</td>
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* $p < .01$; ** $p < .001$
## Multiple Regressions Predicting Grades From Achievement Tests and Student’s Autonomy

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<tr>
<th>Subject</th>
<th>Predictor</th>
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<th>$f$</th>
<th>$\beta$</th>
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<td>22.96**</td>
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<td>Language Arts</td>
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<td>3.90**</td>
<td>.47</td>
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<td>Social Studies</td>
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<td>.54</td>
<td>4.17**</td>
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<td>17.28**</td>
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** $p < .01$
**Rural Chinese Children’s School Motivation Related to Autonomous and Controlled Motivation**

<table>
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<tr>
<th></th>
<th>Autonomous motivation</th>
<th>Controlled motivation</th>
<th>Interaction</th>
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<td>Interest</td>
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<td>-.04</td>
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<td>Perceived competence</td>
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<td>.18**</td>
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<td>.39***</td>
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<td>Perceived choice</td>
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* $p < .05$; ** $p < .01$; *** $p < .001$

One hundred and ninety-five children in grades 4, 5, and 6 (mean age = 11.95 years, ranging from 9 to 15 years old; 47.7% female) were recruited from different public elementary schools from four rural areas in Mainland China. Their parents were mostly farmers, migrant workers, tradesmen, or homemakers. Parents’ education level was variable, but most had not completed middle school. Grandparents raised some of the children.
Chinese 5th Grader’s relative Autonomy and School Motivation/Engagement

Figure 4. Relationships between Relative Autonomy Index (RAI), relatedness, and motivation in Study 4.

From Bao & Lam (2008), DP
Differences Associated With High Versus Low Autonomy

- Greater persistence
- Greater performance
- Greater Creativity
- Greater interest/enjoyment in acting
- Greater well-being

- Support for autonomy has important functional effects
  - Across Subject Matters
  - Across development
  - Across Cultures
Factors Associated with Greater Relative Autonomy of Extrinsic Motivation

- Autonomy Support
  - Minimal External Pressure
  - Provision of Maximal Choice
  - Internal Frame Reference Shared

- Competence Support
  - Optimal Challenge
  - Development Appropriate Demands
  - Relevant Feedback

- Relatedness
  - Warmth, Involvement
  - Conveyance of Belongingness

Internalization & Integration
Autonomy-Supportive Environments

- Understand the other’s perspective
- Encourage self-initiation & reflection
- Offer meaningful choices
- Provide a rationale for requested behavior
- Minimize use of controlling language/rewards
Competence-Supportive Environments

- Design activities so that mastery is dominant experience
- Structure provides scaffolding for active development
- Feedback is informational rather than controlling
- Praise focuses on effort and specific accomplishments; not ability or comparisons
Structure AND Support for Autonomy

Structure: Information concerning expectations, guidelines, rules, contingencies, or limits that are important within a given context.

Structure can be implemented controlling or in an autonomy supportive way.
Students’ autonomous motivation as a function of perceived teaching profile

Relatedness-Supportive Environments

- Covey respect for the individual
- Individual feels valued and significant
- Care and concern when facing challenges
- Warmth
- “My teacher likes me”
Estimated Latent Constructs’ Means and Variances for U.S. (N=116) and Russian (N=120) High School Samples

<table>
<thead>
<tr>
<th>Latent Constructs</th>
<th>U.S. Mean</th>
<th>U.S. Variance</th>
<th>Russia Mean</th>
<th>Russia Variance</th>
<th>t</th>
<th>p</th>
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<tr>
<td>Parent A-S*</td>
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<td>.71</td>
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<td>.48</td>
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<td>Self-Esteem</td>
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<tr>
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<td>.85</td>
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<td>Life Satisfaction</td>
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<td>-.57</td>
<td>.79</td>
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<td>p&lt;.001</td>
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*A-S = Autonomy Support
## Relations Between Parent and Teacher Autonomy Support and Self-Regulation in U. S. and Russian High School Students

(Chirkov & Ryan, 2001)

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<thead>
<tr>
<th></th>
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<td>.38**</td>
<td>.36**</td>
<td>.47**</td>
<td>.43**</td>
</tr>
<tr>
<td>Intrinsic Motivation</td>
<td>.14</td>
<td>.60**</td>
<td>.16</td>
<td>.48**</td>
</tr>
</tbody>
</table>
Correlations Between Parent and Teacher Autonomy Support and Well-Being in U. S. and Russian High School Students

<table>
<thead>
<tr>
<th></th>
<th>U.S.</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent A-S</td>
<td>Teacher A-S</td>
</tr>
<tr>
<td><strong>Self-Actualization</strong></td>
<td>.35**</td>
<td>.33**</td>
</tr>
<tr>
<td><strong>Self-Esteem</strong></td>
<td>.40**</td>
<td>.18</td>
</tr>
<tr>
<td><strong>Depressive Symptoms</strong></td>
<td>-.09</td>
<td>-.14</td>
</tr>
<tr>
<td><strong>Life-Satisfaction</strong></td>
<td>.49**</td>
<td>.34**</td>
</tr>
</tbody>
</table>
Teacher and Parent Influences on Scholastic and Social Outcomes in Belgian High School Students
Effects of Group Leader Autonomy Support on Course Performance, Controlling for Ability and GPA

<table>
<thead>
<tr>
<th>Overall Sample</th>
<th>n=118</th>
<th>n=118</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Ability +</td>
<td>.17*</td>
<td>.20*</td>
</tr>
<tr>
<td>Grades +</td>
<td>.49***</td>
<td>.51***</td>
</tr>
<tr>
<td>Step 2: Autonomy Support</td>
<td>.22**</td>
<td>.24**</td>
</tr>
</tbody>
</table>

Notes: + Ability = SAT Scores and AP Science/Math credits
Grades = Cumulative Grade Point Average

* p < .05, ** p < .01, *** p < .001
Effects of Group Leader Autonomy Support on Course Performance, Controlling for Ability and Grades

<table>
<thead>
<tr>
<th>Initial Relative Autonomy</th>
<th>Low n=69</th>
<th>Low n=69</th>
<th>High n=56</th>
<th>High n=56</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Final Exams</td>
<td>Final Grade</td>
<td>Final Exams</td>
<td>Final Grade</td>
</tr>
<tr>
<td>Step 1: Ability + Grades +</td>
<td>.16</td>
<td>.44*</td>
<td>.15</td>
<td>.20*</td>
</tr>
<tr>
<td>Step 2: Autonomy Support</td>
<td>.37**</td>
<td>.44**</td>
<td>.07</td>
<td>.03</td>
</tr>
</tbody>
</table>

Note. + Ability = SAT Scores and AP Science/Math credits
Grades = Cumulative Grade Point Average

* p < .01, ** p < .001
Effects of perceived parental control and responsiveness on Jordanian adolescents’ need satisfaction and teacher rated outcomes

From: Ahmad et al., 2012
Autonomy Support, Autonomous Motivation, and Retention/Dropout

- **Teacher autonomy support, Quebec public schools** (Vallerand, Fortier, Guay, 1997)
  
  More intrinsic motivation and more internalization
  More perceived competence
  Greater retention in school

- **Teacher autonomy support in rural districts** (Hardre & Reeve, 2003)
  
  More perceived competence
  More intrinsic motivation and more internalization
  Greater school retention
A Cross-Cultural Perspective: Data Collection in 23 Countries
Inspiring Teachers: The Same Everywhere

Students wrote narratives about their most recent, most motivating, and most de-motivating teachers.

In EVERY sample, autonomy-support and relatedness emerged as the most frequent and salient characteristics, along with enthusiasm and energy.

In NO sample did rewards, grade focus, rigor or control emerge as positive factors. In most samples (though not all) grade focus was associated with de-motivating teachers.

Niemiec, et al., 2013
Teachers need support too!

Engkey, a white, egg-shaped robot developed by the Korea Institute of Science of Technology (KIST)
From Nie, Chua, Yeung & Ryan (2012, under review)

Impact of principal leadership on teacher motivation (Fernet et al., 2012)

Notes: *p < 0.05 and **p < 0.01; indicators and error terms were omitted for clarity
Teacher Autonomy and Student Motivation

Figure 2. Multilevel model of autonomy-supportive teaching as a mediator of the relations between autonomous motivation for teaching and autonomous motivation for learning. $\gamma_c$ is the direct association between autonomous motivation for teaching and autonomous motivation for learning, and $\gamma_{c'}$ is the same association while controlling for the mediator. $ns$ = not significant. $^* p < .05$. $^{**} p < .01$. 
Pressure From Above and Below Affects Teachers’ Autonomy

Pelletier, Levesque & Legault, 2002, JESP
At a policy level...
Tests, Tests and more Tests — The Current Climate of Learning & Teaching

“(active education) requires that the student’s efforts should come from the student himself, instead of being imposed, and that his intelligence should undertake authentic work instead of accepting predigested work from the outside”

~ Piaget, 1970
Can Tests Motivate?

They can:

- **Inform**: they can provide effectance relevant feedback, affirm competence, facilitate improvement, and enhance motivation

- **Control**: they can be used to pressure students to study in specific ways, and undermine autonomous motivation

- **Amotivate**: they can signify poor performance and diminish all motivation
Standardized Testing

(assessment of educational attainments that allows for meaningful and reliable comparisons across students and schools)

versus

High-Stakes Standardized Testing

(assessment plus the application of rewards/punishments contingent on test score outcomes)

HST = assessment plus “motivation”
Is High Stakes Testing Based on Behaviorism?

Superficial Resemblance:

Finn (1991) states: “The problem is that academic success yields such few rewards (sic) and indolence brings few penalties” (p.120).

On deeper reflection:

Behaviorists distinguish between behaviors and outcomes e.g., effort, right strategies, reinforced not outcomes per se

issue is controllability
……a danger with this outcome focus is that a wide variety of potential behaviors, both desirable (e.g. changes in instruction, improved effort, etc.) and undesirable (e.g. teaching to the test, narrowing of curriculum, cheating) can be equally “reinforced” so long as they produce the desired outcome.

From Ryan & Brown (2005): *Legislating Competence*....
Predictions based on SDT concerning HST-
(e.g., Ryan & La Guardia, 1999; Ryan & Brown, 2005; Weinstein & Ryan, 2009)

- Test Scores Will Go Up
  - Curricula will narrow
  - “Teaching To Test” will occur
- Negative impacts on students
  - Less engaging; loss of autonomy
  - Less choice, less enrichment
- Lack of Transfer of Score Gains
“Unintended” HST Consequences

Constraints on teachers ability to create motivating lessons, as they “focus on coverage”

More controlling teacher styles in classroom needed

Loss of teacher creativity and enthusiasm

Greater teacher pressure and burnout

See, e.g., Deci, Speigel, Ryan, & Koestner (1982); Flink, Boggiano, & Barrett (1990); Pelletier, L. G., Levesque, C. S., & Legault L. (2002); Ryan & Brown ,(2005); Roth, , Assor, Kanat-Maymon, & Kaplan,. (2007); Ryan & Weinstein,( 2009)
Are Tests Useful?

• Tests can provide meaningful feedback for the learner which can be informative and motivating if the tests are not linked to high stakes.

• Tests serve as potential inputs that can inform teaching practice, but should not be strongly linked to high stakes for teachers or administrators.

• The important point is not to confuse evaluation and motivation.
A few comments on counseling.....
Successful Randomized Clinical Trials in Physical Health Using SDT’s Autonomy Supportive Techniques

- Smoking
- Physical Activity
- Weight Loss
- Diabetes
- Medication Adherence
  - Healthy Diet
  - Dental Hygiene
## Correlations of Motivation-Related and Outcome Variables in Drug Treatment Program

<table>
<thead>
<tr>
<th></th>
<th>Autonomy Support</th>
<th>Perceived competence</th>
<th>Internalized Motivation</th>
<th>External Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance (% missed)</td>
<td>-.21*</td>
<td>-.22*</td>
<td>-.28*</td>
<td>.20</td>
</tr>
<tr>
<td>Relapse (% Pos. urines)</td>
<td>-.26*</td>
<td>-.27*</td>
<td>-.27*</td>
<td>.19</td>
</tr>
<tr>
<td>Methadone “Take-out” status</td>
<td>-.25*</td>
<td>-.22</td>
<td>-.25*</td>
<td>.01</td>
</tr>
</tbody>
</table>

N=74, * p < .05; ** p < .01; Zeldman, Ryan & Fiscella, 2004
Autonomy Support Represents a Significant Treatment Factor Across Methods

Odds ratio = 1.95       (those 1 SD above mean for A-S show 2x the benefit; 4x those 1 SD below mean)

More autonomous motivation was significantly associated with symptom improvement

Autonomy support more predictive of positive outcomes than therapeutic alliance
Relations of autonomy-support to therapeutic alliance and treatment motivation in patients being treated for depression

<table>
<thead>
<tr>
<th></th>
<th>Therapeutic Alliance</th>
<th>Perceived Autonomy Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy-Support</td>
<td>.44***</td>
<td></td>
</tr>
<tr>
<td>Relative Autonomy</td>
<td>.28*</td>
<td>.40***</td>
</tr>
</tbody>
</table>

Autonomy support is more than merely connecting and cooperating

Students are naturally prone to grow and learn

Yet their quality of learning and engagement is strongly impacted by basic psychological need supports, including support for autonomy

Need support promotes intrinsic motivation and internalization, in turn yielding more effective performance and greater wellness

Teachers also need support for their own autonomy, competence and relatedness

Policies concerning testing and evaluation affect the climate of teaching, and teachers ability to support students autonomous learning
www.selfdeterminationtheory.org

Thank You
Autonomy and Awareness

Awareness is the ground of autonomous functioning; lack of awareness makes one vulnerable to being controlled or non-self-regulated.

Mindfulness: open and receptive awareness of what is occurring in the present moment (Brown & Ryan, 2003, JPSP)
### Sample 2 Results: Multilevel Modeling

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Day-to-Day Autonomy Unstandardized estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-0.98</td>
</tr>
<tr>
<td>Time of day</td>
<td>0.53****</td>
</tr>
<tr>
<td>Day of study</td>
<td>-0.03</td>
</tr>
<tr>
<td>Weekly cyclicity</td>
<td>-0.51***</td>
</tr>
<tr>
<td>Autocorrelation</td>
<td>0.02</td>
</tr>
<tr>
<td>Trait mindfulness</td>
<td>1.08**</td>
</tr>
<tr>
<td>State mindfulness</td>
<td>1.59****</td>
</tr>
</tbody>
</table>

** $p < .01$  *** $p < .001$  **** $p < .0001$

From Brown & Ryan (2003), *JPSP*
Mindfulness Moderates the Relations of Implicit and Explicit Measures

- IAT assessed affect compared with self reports of affect. $r = .16$, ns.

- Mindfulness moderates this relation

From Brown & Ryan, 2003, JPSP
Figure 1. Moderation effect of Mindful Attention Awareness Scale mindfulness on the relation between implicit and explicit affect valence. High and low values are 1 standard deviation above and below the mean, respectively.
## Mindfulness, Stress, Coping and Well-being

Weinstein, Brown & Ryan, 2009

<table>
<thead>
<tr>
<th></th>
<th>$M$</th>
<th>$SD$</th>
<th>Trait mindful $\beta$</th>
<th>State mindful $\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trait mindfulness</td>
<td>4.14</td>
<td>0.95</td>
<td>–</td>
<td>0.57**</td>
</tr>
<tr>
<td>State mindfulness</td>
<td>4.12</td>
<td>1.92</td>
<td>0.57**</td>
<td>–</td>
</tr>
<tr>
<td>Stress response</td>
<td>4.18</td>
<td>1.60</td>
<td>–0.34**</td>
<td>–0.29*</td>
</tr>
<tr>
<td>Approach coping</td>
<td>2.99</td>
<td>1.03</td>
<td>0.21*</td>
<td>0.20*</td>
</tr>
<tr>
<td>Avoidance coping</td>
<td>2.43</td>
<td>1.13</td>
<td>–0.22*</td>
<td>–0.42**</td>
</tr>
<tr>
<td>Efficacy for modulation</td>
<td>3.25</td>
<td>1.02</td>
<td>0.35*</td>
<td>0.49**</td>
</tr>
<tr>
<td>Ill-being</td>
<td>3.37</td>
<td>1.12</td>
<td>–0.38**</td>
<td>–0.44**</td>
</tr>
<tr>
<td>Well-being</td>
<td>4.62</td>
<td>1.15</td>
<td>0.46**</td>
<td>0.32*</td>
</tr>
</tbody>
</table>
Informational versus Controlling Exams

Grolnick & Ryan (1987)
Controlling versus non-controlling focus
less conceptual learning, more rote
rote learning advantages quickly lost
less interest in subject matter
less willingness to do more

Kage (1991)
Junior high school history classrooms in Japan.
Informational vs. Controlling format
lead to more autonomous motivation and
better final exam performance in the course.
Parental A-S and Chinese Learners in Belgium

Figure 3. Structural model of the relationships between autonomy-supportive versus psychologically controlling parenting, the relative autonomy index, the optimal learning composite, and the adjustment composite. **p < .01.
Regression coefficients relating autonomy support to satisfaction and vitality in the rated student-teacher relationship

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>Russia</th>
<th>U.S.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with relationship with teacher</td>
<td>.39**</td>
<td>.55**</td>
<td>.62**</td>
</tr>
<tr>
<td>Vitality when with teacher</td>
<td>.45**</td>
<td>.61**</td>
<td>.53**</td>
</tr>
</tbody>
</table>

From Lynch, LaGuardia & Ryan, 2009, *JPP*