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The relationship between self-determined vs. other-determined lesson sequencing and students' autonomous motivation: To whom do learners assign agency?

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Introduction & Statement of research problem

Proponents of self-determination theory (SDT) argue that intrinsic motivation is a function of peoples' innate needs for autonomy, relatedness, and competence (Ryan & Deci, 2002). Intrinsic motivation fluctuates according to the degree that these innate needs are satisfied. With regard to autonomy, when learners perceive less autonomy in a learning environment, they are said to display lower levels of intrinsic motivation, their motivation becomes more extrinsically regulated, they invest less effort and perform more poorly than learners that perceive more autonomy and control. This general framework, however, may fail to account for potential compensatory factors when autonomy is volitionally assigned from self to an "other" agent. In an online lesson that gives learners a choice among varying levels of autonomy, this study seeks to explore conditions under which varied "other" agents can facilitate intrinsic motivation or more integrated forms of extrinsic motivation. Ultimately, we need to better understand how motivation leads to learning. Indeed, according to Pintrich (2003) this is one of the leading questions to be answered by the field, thus it is hoped that the proposed study will help shed light on possible mechanisms through which motivation facilitates learning.

Literature Review
SDT overview

Research has shown that humans are naturally curious, vital, and self-motivated. "At their best, they are agentic and inspired, striving to learn; extend themselves; master new skills; and apply their talents responsibly." (Ryan & Deci,, 2000 p. 68). Nevertheless, under some conditions, these traits are not as strong and humans exhibit diminished drive, curiosity and motivation toward life's endeavors—regardless of whether or not one's motivation emanates from within or is externally imposed. Research has also shown that motivation is not a simple bi-modal construct manifesting itself as either extrinsic or intrinsic. Rather it has been theorized and demonstrated to be more complex, involving hosts of inter-related individual, social and cultural factors. (Ryan & Deci, 2002).

Self-determination theory (SDT) accepts these properties of mankind and further proposes that in order to feel fully agentic and self-determined, that individuals' innate needs of autonomy, competence and relatedness, must be satisfied (Deci & Ryan, 1985). Theorists employing SDT focus much of their research on the personal, social and environmental conditions that facilitate and hinder satisfying these needs. This focus exists because of the strong links between the satisfaction of those psychological needs and intrinsic motivation. (Ryan & Deci,, 2000)

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Thus although satisfaction of our need for *autonomy*, *competence* and *relatedness* facilitates intrinsic motivation, there is evidence that suggests that while each is necessary, by themselves, they may not be sufficient. For example, Fisher (1978) and Ryan (1982) demonstrated that feelings of competence alone will not enhance intrinsic motivation unless people perceive themselves as the origin of the behavior—that is, they experience their behavior as self-determined vs. other-determined. What is unclear, however, is the degree to which these needs be fulfilled in order for learners to be intrinsically motivated, and whether high levels is one or two areas can compensate for deficiencies in another area.

Three related variables seem to be at play, each capable of interacting with the other. First, the amount of objective autonomy support in the learning environment can fluctuate or be manipulated. In this study, however, we propose to leave this variable largely constant in order to better understand the influence of learner perceptions on motivation. Some minor adaptations will be made to the self-determined sequence, which are addressed elsewhere in the proposal.

Second, learners may simply possess varying psychological need for autonomy. General orientations as measured by the PLOC may help shed light on [but this doesn't get at how much is needed! This is likely impossible to objectively measure and is out of the scope of this paper]

Third, learners may interpret events and conditions as varyingly autonomous. This has been addressed at one level by noting that perceptions of autonomy, for example, may be more important than actual, objective presence of autonomy. What one person interprets as a highly autonomous event or condition, may be interpreted by another as quite controlling. In fact, studies have shown such interpretive differences to exist along both gender (Wong, 2000) and cultural lines (Chirkov et al., 2003; Iyengar & Lepper, 2002; Iyengar, Ross, & Lepper, 1999).

These ideas point to a critical extension of SDT suggesting that motivated behaviors vary in the degree to which they are perceived to be autonomous vs. controlled. That is, autonomous motivation is not linear, and is mediated by general orientations as well as environmental, social and cultural variables (Deci & Ryan, 1985; Iyengar & Lepper, 1999; Wong,, 2000). Such things as imposed goals, rewards, threats, deadlines, directives, and evaluations can diminish intrinsic motivation because they undermine self-determination and elicit an external perceived locus of causality. On the other hand, choice, recognition of feelings, and affordances for self-direction were found to enhance intrinsic motivation because they allow people a greater feeling of autonomy (Deci & Ryan, 1985).

Learning can and regularly occurs despite diminished intrinsic motivation. Much of workplace and academic learning is externally determined, offering little support for learner autonomy and self-determination. In such conditions, students may engage in learning activities with resentment, resistance and a lack of interest and trust. Many

academic activities are neither inherently interesting nor enjoyable to the learner (Ryan & Deci, 2000). Students do academic tasks and assignments because they have to, but some see the value of them and personally endorse the task, while others do it simply to avoid a negative feedback, bad grades or for other extrinsic motivators. While neither is done out of sheer interest or intrinsic enjoyment, the former is considered a healthier form of external motivation and has been shown to produce more lasting learning (Grolnick & Ryan, 1987).

But when learning tasks are externally imposed, and not engaged in simply for the joy of learning, one should not automatically assume that learning is therefore equally ineffective. Motivation as described in SDT is not bi-modal. To the degree that behaviors are perceived as controlled vs. autonomous, a learners motivations may run along a continuum from being amotivated, to the most externally-regulated degree of motivation (extrinsic) through introjected and identified motivation to the most internalized degree of extrinsic motivation (integrated) and finally to intrinsic motivation. (Deci, Vallerand, Pelletier & Ryan, 1991).

The proposed study focuses researching factors which may contribute to internalization of extrinsic regulation, thereby more closely realizing the benefits of intrinsically motivated learning.

SDT's view of Extrinsic motivation
As discussed, SDT's view of extrinsic motivation is one of four degrees of internalization vs. external regulation. *Extrinsically* motivated behaviors are least autonomous and are performed to satisfy an external demand or reward. Learners typically see these behaviors as controlled. *Introjected* motivation involves doing a task without fully accepting it as one's own. Introjected behaviors, although internally driven, are also a controlled form of regulation in that behaviors are performed to avoid guilt or anxiety, or to look good in the sight of one's peers. *Identified* motivation reflects a conscious valuing of the behavior or goal. The task or assignment is accepted or seen as personally important—even if not easy or fun. *Integrated* motivation most closely approximates intrinsic motivation in that tasks and assignments are more fully internalized. In this final case of extrinsic motivation, the learner sees the tasks as an integral part of who they are and what they value and as a wholly volitional means to what they are working to achieve. Integrated motivation is associated with more interest, more effort, greater enjoyment of school than less integrated forms of extrinsic motivation (Ryan & Connell, 1989; Sheldon & Elliot, 1998—check this reference again).

Perceived Locus of Causality
SDT researchers developed a generalized causality orientation scale (GCOS) (Deci and Ryan, 1985) to measure people's perceived locus of causality (PLOC) or the perceived source of initiation and regulation of behavior. Related to the construct of Locus of Control (Rotter, 1966), PLOC is designed to simultaneously measure people's control, autonomy and impersonal orientations. These orientations were not held to be mutually exclusive, in that people could score relatively highly in their different orientations (Wong, 2000).

A strong *autonomy orientation* leads learners to select activities that allow greater initiative. Such self-determined learners display more integrated motivation and will less likely be controlled by extrinsic rewards. (Deci & Ryan, 1985).

Control oriented learners seek out, select, or interpret events as controlling. They tend to do things because they think they "should," and they tend to rely on controlling events such as deadlines, or a teacher's monitoring to motivate themselves. Extrinsic rewards play a more determinative role in the control oriented learner's behavior. Deci and Ryan point out that in some instances, behavior may involve "rebellion against the controls and doing just the opposite of what is demanded (p. 112)." Either way, in such instances of compliance or defiance, the behavior is still controlled in that it is reactive. "Both compliance and defiance have a quality of being pressured and conflicted. (p.112)"

A high *impersonal orientation* involves learners experiencing their behavior as being beyond their intentional control. They tend to lack efficacy for the task and consider themselves unable to regulate their behavior toward desired outcomes.   This can also manifest itself in the so-called bandwagon effect, where they follow precedents or others, "not because [they] are controlled by the precedents but because they lack the intentionality to do differently." (Deci & Ryan, 1985 p.112)

Thus, the path to internalization and integrated motivation appears to be neither linear (Sheldon & Elliot, 1998), nor universally experienced.   SDT researchers have further stated, that "we have always emphasized that the effects of these events depend on the way they are experienced or interpreted by the recipient…different people seem to respond differently to the same events" (Deci & Ryan, 1985 p.110). Given then the significance of integrated motivation and the relevance of individually perceived causality orientations, a critical issue becomes better understanding the relationship between them--particularly how they relate to one another in the context of traditional, externally-regulated academic events.

Autonomy and Relatedness interact
Autonomy and competence appear to be necessary ingredients for learners to feel self-determined. Relatedness, however, is held by some to play a lesser, more distal role in motivation (Deci & Ryan, 2000 Psychological Inquiry). This study hypothesizes relatedness to play a more critical role than hitherto believed, specifically with externally regulated activities and certain causality orientations.

Because extrinsically-motivated tasks are not typically interesting, Ryan, Stiller and Lynch (1994) note that people initially perform them out of a desire to emulate significant others with whom they wish to feel affiliated or related. This inclination to energize behaviors and make choices based on a socially relevant need for relatedness is borne out in numerous cases. According to Ryan & Deci (2000), integrated motivation can be realized in an externally regulated activity, if learner feels competent and perceives that a relevant reference group endorses the activity.

Likewise, if the "other" individual or group is perceived as supportive, one can be autonomously dependent on the other, willingly assenting to the other's advice or care (Chirkov et al, 2003 p.98). However, when one's decision to forgo autonomy in order to preserve relatedness is coerced (i.e. in search of approval or regard of others), rather than being volitional (i.e. out of a sense of empathy or mutuality), Ryan (1993) describes how the quality of both autonomy and relatedness suffer. "The quality of the relatedness one achieves by complying with others' demands (thus giving up autonomy) lacks the characteristics of high quality relatedness." (p. 38)

Thus, in the context of a computer-based learning environment, to the extent that a learner willingly chooses to cede one's agency to an "other" or to accept an "other's" recommended path to learn given materials, while ensuring one's own needs, interests, and goals are addressed, one is fully autonomous and self-determining. To the extent that a learner feels compelled to reject an available path option, regardless of whether it is consistent with one's interests and goals, the learner fails to act autonomously, and is therefore less self-determining. (Koestner et al, 1999) Koestner et all, refer to these forms of autonomy respectively as reflective autonomy and reactive autonomy, and further describe the role of causality orientations in influencing people's responses to advice from an expert.

In accepting advice from an expert, or freely ceding autonomy and control to any agent, it is important to understand the learner's perceptions of the agent. Whether the agent be oneself, an "intelligent" computer, a supposed peer, or a domain expert (instructor), it is likely that between-learner variance will exist in how related one feels to the agent with regard to multiple factors: trustworthiness, credibility relative to the task, perceived empathy, responsiveness, and the learner's causality orientation (Isaac, Sansone & Smith, 1999). Extensive research in the field of Communications reveal that properties of ethnicity, gender, age, titles, nationality, language fluency and appearance among others all play a decided role in whom we--even unwittingly—trust, find credible, and desire affiliation with.(Corrie, 2003; Wathen & Burkell, 2002; Sundar & Nass, 2001). It is naïve to presume that with adults, these influences altogether disappear in academic settings or even in computer-based learning environments. To the extent that learners are oriented toward, and are sensitive to relatedness, and to the extent that learners value and deem the agent competent (keep in mind that the agent may also be one's self), these differences should correspond with more intrinsic-like motivation. Despite the prevalence of limited-autonomy environments, this prediction should hold true for learners, including distance education learners, believed to be at greater risk of losing intrinsic motivation due to their lower sense of relatedness (Rovai & Lucking 2003).

Choice
"Looking at both sides of the coin," deCharms (1968) stated "we may hypothesize that when a man perceives his behavior as stemming from his own choice he will cherish that behavior and its results; when he perceives his behavior as stemming from the dictates of external forces, that behavior and its results, although identical in other respects to behavior of his own choosing, will be devalued" (p. 273). While not a completely controlled variable in this proposed study, learner "choice" is a common means (Skinner,

1996), and the primary means by which autonomy will be invoked. That is, participant autonomy is largely limited to free choice between a self-determined (high objective autonomy) path, and three "other-determined" (low objective autonomy) paths through a computer-based lesson on the human heart. The theoretically distinct, other-determined paths are represented by an "intelligent" computer, supposed peers, and a domain expert (instructor).

Numerous forms of learner-control and autonomy-supportive strategies and behaviors beside choice are presented in the literature (Assor, Kaplan, & Roth, 2002; Kay, 2001; Black & Deci, 2000; Deci, Eghrari, Patrick, & Leone, 1994; Kinzie, 1990), some of which would likely elicit stronger perceptions of autonomy than does the arguably simplistic lesson path choice of this proposed study. Many, however, are also technically challenging and rarely employed in individually-paced computer learning environments, providing some level of ecological validity to the proposed conditions.

Once one's agency is freely exercised and a choice is made, learners follow either their other-prescribed linear path through a lesson, punctuated with mini-quizzes to assess learning, or a self-determined path through the lesson materials, where optional quizzes are available as comprehension self-checks. Arguably missing, is a control condition in which no choice (autonomy) is provided, and learners are instead assigned to one of the four conditions. This aspect of choice vs. no choice will be the subject of future research.

Iyengar, Lepper & Ross (1999) review studies exhibiting the differences between the affective and motivational consequences of choices made by the self and those of choices imposed on the self by others. While the latter scenario is largely ignored, simply having a choice, they claim, gives individuals the opportunity to exercise autonomy by selecting the options that most closely match their personal needs, preferences and orientations. Cordova and Lepper (1996) in an earlier study showed that even apparently trivial choices such as personalizing ones computer math game with their name, or selecting ones spaceship graphic, produced both motivational and learning gains. They even suggest that learners be given only trivial rather than instructionally-relevant choices, to avoid the risk that they sabotage their own learning (Cordova & Lepper, 1996; Lepper & Malone, 1987)

The perception conundrum?
In addition to the work on source credibility, and computers as social agents (Nass & Moon, 2000; Nass & Steuer, 1993; Kiesler, Sproull, & Waters, 1996), the work in learning with hypermedia (Chen & Macredie, 2002), also demonstrates a host of relevant factors influencing what sources people attend to and learn from. Research in SDT itself, has uncovered conditions under which different individual's subjectivity and perceptions matter in how they respond to like events, differentially (La Guardia, Ryan, Couchman & Deci, 2000; Wild, Enzle, Nix & Deci, 1997). For example, when measuring intrinsic motivation across self-determined and other-determined choices, some suggest that unlike Caucasian-American culture, for collectivistic cultures like Japan and Poland, following the wishes of valued others will not necessarily impair, and may even enhance, intrinsic motivation. (Iyengar, Ross, & Lepper, 1999). Hence, to add to Ryan's (1993)

noteworthy observation, "it is in [learners' unique perceptions and ensuing] subjective assent to some influences and not others that the question of autonomy [relatedness and motivation] becomes meaningful [and most interesting]" (p.10). It is also this observation that has engendered the proposed study.

Research Questions/Hypotheses
This study assumes an online learning environment with low *objective* support for autonomy. It seeks primarily to explore the relationship among causality orientations, motivation, *perceived* levels of autonomy, and relatedness and asks:
Questions:

1. For undergraduate students varying in PLOC, who are given a choice between a self-determined or other-determined path through an online lesson, were any differences evident in autonomous motivation, performance or satisfaction with choice?

2. For undergraduate students varying in PLOC, selecting among the 3 other-determined sequences, were any differences evident in autonomous motivation, performance or satisfaction with choice?

3. What factors do students report as most influential in their lesson (condition) choice?

4. Will PLOC undergraduate students who choose their own agency show more integrated motivation, perform better and be more satisfied with their choice?

5. Does this study's provision of choice sufficiently satisfy the need for autonomy? Does it vary with learner PLOC? [Can I know this without having a no-choice option? Will self report data give me an meaningful answer?]

Hypotheses:
1. A high degree of concordance will exist between a student's PLOC and his/her theoretically-predicted selection.
   a. Highly autonomy-oriented students will generally choose self-determined lesson
   b. Highly control-oriented students will generally choose other-determined lesson

2. Highly autonomy-oriented students will display more integrated/intrinsic motivation, higher choice satisfaction, and better performance when their other-determined selection is moderated by high perceptions of autonomy

3. Highly control-oriented students will display more integrated/intrinsic motivation, higher choice satisfaction, and better performance when their other-determined selection is moderated by high positive perceptions of relatedness.

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4. High integrated motivation scores will relate to more frequent selection of , and persistence in, the third free-choice module.

5. Unsatisfied students will report more regret and desire less autonomous options in the future (instructor, or peer)

6. Highly control-oriented students will choose a lesson option they deem will best serve them (whether or not they be autonomy-supportive)

7. Varying agents will have a differential effect on learner's integrated motivation (depending on what? PLOC, interpretation, credibility?)

8. A loss of autonomy can be shored up, (compensated for) by high perceptions of relatedness/trust with "other" agent/source.

9. Students will rate relative condition autonomy consistent with study predictions (self>computer>peer>instructor)

Methodology
Design
This non-experimental, correlational design provides includes a prestest (GCOS), self-selection of 1 of 4 treatment conditions, and a series of posttests (Performance, SRQ-L, Satisfaction). It is expected that all 4 conditions will attract some participants, but it is likely that condition n's will vary significantly.

Independent Variable: Condition selection
Dependent Variables: Motivation, Satisfaction/Preference, Performance
Co-variate: Causality orientation

01--x—0
02--x—0
03--x—0
04--x—0

Participants
[You can make some of the demographic stuff up—based upon likely population]
Approximately 180 undergraduate participants will come from various intact classes from different programs at Penn State's University Park campus. While not a random sampling, efforts will be made to recruit a representative, but diverse group.
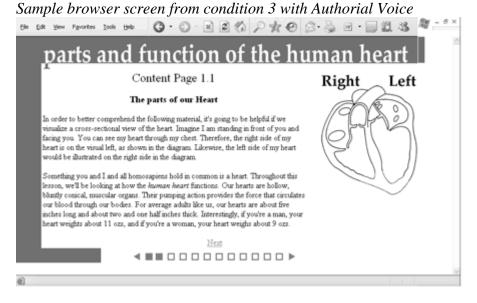
Materials (instruments)
[Be sure to be specific about previous reliability and validity of the measures. Include sample items. Include screen shots of materials, for example, or describe setting or intervention]
<u>Treatment conditions:</u>
The Dwyer Heart Content (Dwyer, 1978) is designed to teach and then assess students' knowledge of the basic functioning of the human heart. It has been used in hundreds of empirical studies and has been thoroughly validated. The instructional materials and assessments to be used in this study were developed in the form of a programmed instruction lesson and take approximately 45 minutes to complete. In this study, all instructional content will be presented in two sets of 10 non-scrolling computer screens (frames) each with 3 mini-quizzes to help learners gauge comprehension before taking their multiple choice segment test. Mini-quizzes must be answered (albeit not correctly) before continuing on to subsequent screens. Five additional screens will be used to explain study procedures, provide progress feedback and quiz instructions. Each of the 20 instructional screens was split into two sections with textual instruction on the left two thirds of the screen and a static image the heart on the right third of the screen illustrating relevant features or concepts. Navigational controls were placed at the bottom of the screen. All materials were coded in HTML, and presented in the Microsoft Internet Explorer web browser.(see Figure 2)

Figure 2
Sample browser screen from condition 3 with Authorial Voice

All three "other-determined" conditions will be made up as described in previous paragraphs. The self-determined condition, however, will be identical in content but with two differences. First, participants will have a table of contents on the left side of the screen allowing them to freely navigate the lesson frames. Second, the mini-quizzes will also be listed in the table of contents and are provided as optional comprehension self-checks, but will not automatically appear as in the "other-determined" conditions.

Instruments:
Figure 3 provides examples of the introductory text for all four treatment conditions.

Figure 3

Does this need some sort of generic empathy opener?...	
We (your friendly-neighborhood researchers) understand that participating in studies like this can be extremely boring, and can feel like a major waste of time. Despite this, we hope that you simply give this lesson your best shot and that you find your new-found heart knowledge worthwhile. Thanks.	
Self-Determined	**Computer-Determined (adaptive)**
This lesson is laid out in a generally linear fashion (top to bottom on the table of contents). However, feel free to navigate these instructional materials in any order or way you wish for your optimal learning. The mini-quizzes are provided as a optional comprehension check for your convenience. Doing well on them is a great way to ensure you are really learning the material, and will be able to ace the two tests.	This computer-adaptive lesson/test is much like the SAT (or GRE). It will dynamically and intelligently present lesson materials based on *your* performance on the mini-quizzes. It is designed to create the best, most efficient way for you to navigate these instructional materials for optimal learning. The system is designed such that doing well on the mini-quizzes is a great way to ensure you are really learning the material, and will be able to ace the two tests.
Peer-Determined	**Professor-Determined**
A number of students like yourself, who have already gone through these lesson materials collaborated to design the best way for their peers to navigate these instructional materials for optimal learning. They've said that doing well on the mini-quizzes as a great way to ensure you are really learning the material, and will be able to ace the two tests.	A physiology professor, highly experienced in human anatomy, has created what he believes is the best way to navigate these instructional materials for optimal learning. He has also suggested that doing well on the mini-quizzes is a great way to ensure that you are really learning the material, and will also do well on the final two tests.

The 60 multiple-choice items used in this investigation were developed by Dwyer (1978) and consist of typical verbal stem and verbal response options. While the tests remain verbally unchanged from their print originals, they will be ported to an online HTML format for this study, where a server will capture participant responses and store them in a database.

Identification Test (IT)
The identification test (α =.82) was designed to evaluate the participant's ability to identify parts or positions of an object. The participants were required to identify parts of the heart numbered in a drawing by answering 20 multiple-choice questions. The objective of this test was to measure the student's ability to recall facts from the heart content, involving generally lower-level cognitive processing.

Terminology Test (TT)

This test (α =.82) was designed to measure knowledge of specific facts, terms and definitions pertinent to the heart content. This 20-item multiple choice test was used to evaluate the participant's ability to learn concepts.

Drawing Test (DT)

Dwyer's 20-item drawing quiz will be used as the free-choice activity to help assess level of intrinsic/integrated motivation. A brief description and historical reliability data of the tests follow.

Motivation and Causality Orientation measures

Causality orientations will be measured by the General Causality Orientation Scale (GCOS) developed by Deci & Ryan (1985a, *for a revised version, see Ryan, 1989*). Measures of extrinsic motivation will be measured with the Self-Regulation Questionnaire adapted for adults (SRQ-L).

The Learning Self-Regulation Questionnaire (SRQ-L) assesses individual differences in the participant's types of motivation or regulation. The format for these questionnaires was introduced by Ryan and Connell (1989), and first adapted by Williams & Deci (1996). This questionnaire concerns the reasons why people learn in particular settings such as a college. Whereas the Academic Self-Regulation Questionnaire is for use with children, the Learning Self-Regulation Questionnaire is for older students.   It asks three questions about why people engage in learning-related behaviors.

This questionnaire was formed with just two subscales: Controlled Regulation and Autonomous Regulation. Thus, the responses that are provided are either controlled (i.e., external or introjected regulation) or autonomous (identified regulation or intrinsic motivation). The questionnaire can be adapted as needed to refer to the particular course or program being studied. In past studies, the alpha reliabilities for these two subscales have been approximately 0.75 for controlled regulation and 0.80 for autonomous regulation.

The GCOS consists of 12 vignettes and 36 items. Each vignette describes a social or achievement situation (e.g., relating to a friend or failing an examination), followed by three items. One item measures the autonomy, another the control, and a third the impersonal orientation. Each item is rated on a 7-point scale. The total score for each orientation is obtained by summing up responses to the 12 items for that orientation, with higher scores indicating a stronger orientation.

The reliability and validity of the GCOS have been demonstrated (see Deci & Ryan, 1985a; Wong, 2000)—for autonomy (α =.74) and for control (α =.69); test-retest coefficients throughout a 2-month period are α =.75 for autonomy and α =.71 for control. The GCOS also correlates with a number of theoretically related personality constructs (Deci & Ryan, 1985a).

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Misc. Notes:
Depending on their causal orientation, students are differentially motivated by variables of autonomy (choice) and relatedness (options of agents)

- Students will choose the course option they believe will benefit them the most, based on varying reasons:
    - Source--perceived credibility, trust, level of expertise, confidence. (**Competency & Relatedness**)
    - Socially relevant issues—affiliation, identification, confederacy (**Relatedness**)
    - Desire/need/preference for autonomy/control in learning (**Autonomy)**
    - Beliefs about what they think their own learning style is (**Competency**)
    - How much (or whether) they even care or value the task...period!!! (**Competency & Autonomy**)
- Causality Orientations (autonomy, controlled, and impersonal) which are assessed with the General Causality Orientations Scale (GCOS) (Deci & Ryan, 1985, Ryan 1989), will predict(?) motivation in congruent scenarios (orientation matched with appropriate condition choice)
- Thus, according to SDT, if my motivation to learn this material has high Autonomy (given choice over condition), has high Relatedness (assigns agency to desired entity--self or other social agent), and has high Competence (think I can do well, receive encouraging and helpful feedback) then I should display fairly integrated to intrinsic motivation to learn this material, or to do this assignment (as measured by the AMS).
    - This is however, not likely if the task is not sufficiently valued, or students are simply amotivated, or if they literally are only showing up for the extra credit points.

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