

Corporate wikis underground: An investigation of motivation and collaborative engagement

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ABSTRACT

Wikipedia, the world's greatest example of indirect collaboration, was developed without anticipation of reward, recognition, or punishment by volunteers globally. Corporate wikis, engulfed in a context of compensation frameworks, performance monitors, and management controls, have shown limited success. This paper investigates motivation energizing and directing wiki participation behavior in a corporation. The findings reveal consequences of indirect collaboration in a corporate setting.

Grounded theory methodology was applied to understand the relationships among human emotion, motivation, corporate influences, and wiki behavior. Data collected through employee interviews and journals were analyzed through continuous comparative analysis. In addition to proposed wiki engagement theories, an investigation of extrinsic, intrinsic, altruistic, egoist motivation and wiki participation behaviors is presented. Motivational triggers ranged from external pressure to internal personal drive that directed various wiki engagement decisions. Deci and Ryan's (1995) Self-Determination Theory, and Reiss' (2000) Sensitivity Theory, were applied to distinguish types of motivation associated with behavioral outcomes.

Keywords: Wiki, collaboration technology, motivation, grounded theory, wiki behavior, knowledge management

INTRODUCTION

The development of massive structures in nature, and in collaborative technology environments, has been attributed to indirect collaboration (Miller, 2010). Miller refers to knowledge development in wikis as a stigmergic concept, that is, indirect collaboration where individuals perform through changes in their environment, not through direct interactions. Stigmergy in wikis results in incremental growth of knowledge when deposits of information dropped by one individual prompt actions by others. The wiki structure itself facilitates the development of “elaborate structures of connected thoughts” (Miller, p. 133).

Wikipedia, the world’s largest open-community wiki project, is an example of indirect collaboration using wiki technology (Gears, 2011; Li & Bernoff, 2008; Lih, 2009, Miller, 2010). No formal governance structures solicit, compensate, or direct collaborative content development; extrinsic rewards, recognition, or threats of punishment are not known to energize contribution behaviors. Yet, people from around-the-world donate their time and knowledge collaboratively without interacting directly. Wiki is not a revolutionary technology, but its egalitarian-oriented collaboration by open communities “is” (Lih, 2009).

Some companies have recognized the collaborative power of wikis for information sharing, collaboration, and knowledge creation, yet adoption in the workplace has trailed its open counterpart (Hildreth, 2007; Kane & Fichman, 2009; Laff, 2007; Lynch 2008; Mader, 2008; Mayfield, 2006; Nielsen, 2006; Tapscott & Williams, 2006). Grassroots, egalitarian, and open participatory networks, tenets of Wikipedia culture, are in sharp contrast with traditional authority and control management in corporations (Gears, 2011; Hasan, Pfaff & Willis, 2007; Meloche, Hasan, Willis, Pfaff, & Qi, 2009; Pfaff & Hasan, 2006). Wikis represent a shift from capture and disseminate to democratization of knowledge (Pfaff & Hasan). Some leaders are concerned that corporate control could be weakened, and employees feel personal risk posting ideas and openly engaging in discussion (Hasan, et al., 2007; Li & Bernoff, 2008; Lynch, 2008; Majchrzak, et al., 2006; Meloche, et al., 2009; Miller, 2010; Pfaff & Hasan, 2006).

A general principle of volunteerism asserts that people volunteer their time and knowledge because they want to, not because they have to (Clary & Snyder, 1999; Deci, 1971). Tapscott and Williams suggest that wiki participation motives are “intrinsic and self-interested” and “more complex than fun and altruism” (p. 70). Forcing people to volunteer may weaken inner “motivational force” (Clary & Snyder, p. 158) and snuff intrinsic motivation (Deci). Do corporate influences infuse obligation and constraint that diminish intrinsic motivation and dampen creative content development in a wiki? What motivates wiki behavior?

THE STUDY

Since this area of research is new, the contextual details of wikis in an organizational setting made it difficult for the researcher to separate the context from the main effects. Grounded theory methodology was applied to understand the relationships among human emotion, motivation, corporate influences, and wiki behavior. Under grounded theory, one starts with the data and builds arguments or theories from the “ground up.”

The researcher followed an iterative balance of applied grounded theory methods, reflection, analysis, memo writing, and concept modeling. Based upon experiences in software development research, Adolf, Hall, and Kruchten’s (2008) urge the grounded theorist to avoid mixing methods and apply one chosen methodological approach. Therefore, the grounded theory

and coding strategy in this research followed Charmaz (2006) interpretive grounded theory principles (Coleman, 2011).

Data were collected from unstructured interviews (retrospective self-report), personal journals (real-time self-report), observations, and wiki activity reports. Data were analyzed on a continuum using incremental code development that identified codes, categories, concepts, properties, and relationships among concepts. The four resultant theories were identified through related theoretical concepts associated with groups of subjects in the study.

The corporate wiki in the study began as a grassroots initiative in 2006, resulting in 51,062 wiki pages (including talk pages) and 15,145 content pages as of August, 2010. The wiki, used for knowledge management, reflected the power law distribution with a participation rate of 7.7%. Subjects in the study worked in one of twelve business, technology, or business/technology liaison departments working at various locations in the United States. Gender was equally represented in the study, ages ranging from twenty-six to fifty-five. Subjects self-identified their rank as an individual contributor, lead, manager, or senior manager. Subjects were interviewed and asked to maintain a journal documenting their thoughts and feelings about the wiki as they occurred. Of the subjects participating, 83% interacted with the wiki in some way, whereas 17% knew about the wiki but did not participate.

MOTIVATION DEFINITIONS AND FRAMEWORKS

Motivation has been defined as an internal state, need, or desire that energizes and directs behavior (Deci & Ryan, 1985; Myers, 2005; Reber & Reber, 2001; Reeve, 2005). According to Reeve, antecedent conditions influence a person's motivation status. For example, a person-in-need influences the motivation to give, and a personal threat influences avoidance (Reeve). Motives are generally classified as intrinsic or extrinsic, and create desires that are manifested in goal-oriented behavior, physiological responses, and self-reported feelings (Coleman, 2011; Gears, 2011).

Individuals moved to do something for the sake of the activity itself are said to be intrinsically motivated. Reiss (2000) provides useful descriptions of identifiable intrinsic characteristics in the Theory of 16 Desires that were applied in the research. Extrinsic motivation manifests in the form of prodding, pressure, rewards, or threats of punishment, i.e., "do this and you will get that" (Deci & Ryan, 1985; Reeve 2005; Reiss, 2000; Ryan & Deci, 2000a, 2000b). Deci and Ryan's self-determination theory framework was used to identify extrinsic motivation in the data along a continuum.

Altruism and egoism are generally described in psychology literature as motives that result in prosocial behavior. Prosocial behavior is described as a voluntary and conscious decision to behave in a manner that benefits someone else (Bar-Tal, 1976; Batson, Oleson, Weeks, Healy, & Reeves, 1989; Mastain, 2006). Motives energizing prosocial behavior can be differentiated through anticipation of a reward (Batson, Fultz, & Shoenrade, 1987; Mastain; Myers, 2005, 2002). Altruism is considered a motive to help someone else without anticipated reward. Egoism is considered a motive to help someone with an expectation of personal benefit.

Self-Determination Theory

The self-determination theory (SDT) (Deci & Ryan, 1985) defines a motivation framework based on perceived locus of causality that initiates and regulates human behavior (Deci & Ryan; Ryan & Deci, 2000a, 2000b). Central to the SDT and related sub-theories is the recognition that

social and environmental conditions affect personal volition and engagement in activities (Deci & Ryan, 1985). The framework of motivation follows a continuum of amotivation, levels of extrinsic motivation, and intrinsic motivation. The SDT combines both content (innate psychological needs/goals) and process (cognitive/regulatory) motivation theories to understand and predict goal-oriented behavior (Deci & Ryan, 2000). “Specifically, in SDT, three psychological needs-for competence, relatedness, and autonomy-are considered essential for understanding the what (i.e., content) and why (i.e., process) of goal pursuits” (p. 228).

The cognitive evaluation theory (CET), a sub-theory of SDT, asserts that strong feelings of competence and autonomy increase intrinsic motivation (Deci & Ryan, 1985). Rewards, controls, and ego affect an individual’s interest and intrinsic motivation (Ryan & Deci, 2000). The Organismic Integration Theory (OIT) (Deci & Ryan, 1985), another sub-theory of SDT, differentiates regulatory processes associated with four levels of extrinsic motivation. The OIT details “different forms of extrinsic motivation and contextual factors that either promote or hinder internalization and integration of the regulation for these behaviors” (Ryan & Deci, 2000a, p. 61). Each type of extrinsic motivation along the continuum is determined by the degree of autonomy associated with behavioral outcomes regulated by internalization of values, belief systems, or goals.

The following four types of extrinsic motivation fall along a continuum that considers regulatory style and perceived locus of causality: external regulation, introjected regulation, identified regulation, and integrated regulation as indicated in Figure 1 (Appendix B). External regulation classifies a motive for external rewards or threats of punishment (high external control). Introjected regulation classifies a motive driven by internalized feelings of guilt, goodness, or pride that affects self-esteem and internalized by societal norms (somewhat externally regulated). Identified regulation classifies a motive based upon on the importance of something to the individual (somewhat internally regulated) that was freely chosen, e.g., career advancement. Integrated regulation is a classification that shares “many qualities with intrinsic motivation, being both autonomous and unconflicted” (Ryan & Deci, p. 62) (internally regulated). Integrated regulation is the most autonomous form of extrinsic motivation that influences a desired outcome and coincides with a person’s internal values and needs. For example, while carpooling (outcome) may not be considered fun, it serves to conserve resources and protect the environment (internally valued).

Theory of 16 Basic Desires

The theory of 16 basic desires, or sensitivity theory (Reiss, 2000), describes a model of human desire constituting intrinsic motivation. Reiss’s framework is derived from Maslow’s (1954) theory of human needs, and William James’ (1950) theory of basic instinctual desires. Based on a study of 6,000 participants from different countries, Reiss asserts that human desires are genetic, i.e., “ego motives” (Reiss, 2004), that defines intrinsic motivation. Reiss further identifies 16 basic desires on a spectrum, varying in intensity from low to high, and not consciously chosen. These desires are generally considered genetic where the intensity of desire, culture, and their individual experiences (Reiss) shape individuals actions.

Who Am I? The 16 Basic Desires that Motivate Our Actions and Our Personality (Reiss, 2000) provided detailed criteria to enable interpretations of intrinsic desires presented in subject stories. The criteria detailed for each desire was useful in this research to identify intrinsic motives that affected wiki behavior. The 16 basic desires are (not in order of relevance): Order,

Power, Independence, Curiosity, Acceptance, Saving, Idealism, Honor, Social Contact, Family, Status, Vengeance, Romance, Eating, Physical Activity, and Tranquility (Reiss).

Motivation Frameworks and Interpretation of the Data

According to Reeve (2005), “most activity is not purely intrinsic motivation given personal priorities, social demands, and requests of others (p. 155).” This was consistent with the enterprise context in this research. Therefore, Deci and Ryan’s (1985) SDT was applied to interpret the data and identify types of extrinsic motivation along the SDT continuum (refer to Appendix A). Literature describing SDT characteristics provided descriptions that enabled the researcher to distinguish types of extrinsic motivation as: external regulation (purely external), identified regulation (somewhat external), introjected regulation (somewhat internal), and integrated regulation (internal regulation).

The sensitivity theory (Reiss, 2000) asserts that intrinsic motivation is, in large part, innate and varying in intensity. According to Reiss, everyone experiences some level of intrinsic desires varying according to an individual’s genetics, experiences, and cultural influences. Therefore, intrinsic desires were identified by applying the sensitivity theory (Reiss, 2000) to interpret the data. Altruistic and egoistic motivation types were identified by applying common definitions provided in the literature.

The Wiki Engagement (WE) matrix provides a description of the analysis process, along with an example of wiki behavior applied to the data. Motivation is distinguished in terms of a behavior’s extrinsic nature along the SDT continuum; intrinsic desires, prosocial motivation, goals, contextual influences, and self-reported feelings (refer to Appendix A).

WIKI ENGAGEMENT THEORIES

As concepts emerged, the data showed that different sets of circumstances prompted different wiki engagement decisions. Interview data revealed aspects of human emotion, motivation, and contextual elements that resulted in lurking, contribution, collaboration (use of discussion pages and content modification by non-originating authors), and non-participation behavior in the wiki. Four wiki engagement theories coalesced that explain wiki participation behavior in a corporation. The multiple wiki engagement theories that follow explain different wiki outcomes found in the study.

Wiki Engagement Theory One: External Pressure and Mixed Participation Outcomes

When required as a work responsibility, employees participate in a wiki.

Expectations, controls, and monitors associated with employment were purely extrinsic motives prompted participation behavior for subjects associated with Wiki Engagement Theory One. Extrinsic motivation, according to the SDT, scaled as *External perceived locus of causality* as indicated in Figure 2 (Appendix B). When tied to performance, employees contributed to reflect positively on individual performance reviews, or to avoid possible negative consequences. Rewards and recognition, beyond typical employment expectations, were not offered nor were they anticipated by wiki participants.

Employees participated by reading, adding new content, with little to no collaboration when it was a requirement of a business function, project, or team effort. Some subjects in this

group experienced positive affect about the wiki, describing feelings of excitement and joy. Others experienced negative affect such as frustration [the wiki was required], frustration [the wiki isn't used more], and fear [of the technology]. For those experiencing negative affect, mandatory use of the wiki damaged long-term motivation to participate.

Wiki Engagement Theory Two: Enabling Culture and Collaborative Outcomes

In an egalitarian culture with grassroots influences, employees participate in a wiki when they perceive value, are not concerned about inappropriate wiki behavior, and experience positive affect.

Subjects associated with Wiki Engagement Theory Two, voluntarily participated in an egalitarian-oriented culture, prompted by grassroots efforts, when they perceived value (personal and/or corporate benefit), were not concerned about inappropriate wiki behavior, and experienced positive affect. Subjects in this group read, added content, and were highly collaborative by engaging in wiki page discussions and modifying content originating by others. Subjects in this group did not anticipate rewards, recognition, or punishment for their wiki participation actions. Positive affect was associated with participation behavior described by feelings of joy, excitement, liberation, freedom, passion, empowerment, and enthusiasm.

Subjects were motivated to participate to reduce personal stress, take pride in their work, improve information quality and accessibility, improve search capabilities, reduce frustration of others, collaborate more effectively, and to create new knowledge. Extrinsic motivation, according to the SDT, scaled as Somewhat External, Somewhat Internal, and Internal perceived locus of causality. Subjects adding new content described internal desires for Power, Independence, Idealism, and Curiosity. For subjects who collaborated through wiki discussion pages and modified other's content, internal desires of Order, Independence, Idealism, Approval, Curiosity, Power, and Status were expressed in the data.

Wiki Engagement Theory Three: Time, Manager Endorsement, and Participation Outcomes

Employees initially experiencing negative emotion participate in a wiki when managers share a positive attitude [about the wiki], and are given time to participate; emotions shift from negative to positive (mixed affect).

Subjects initially experiencing negative affect about the wiki participated when their manager exhibited a positive attitude [about the wiki], and allowed time for experimentation and participation as indicated in Figure 4 (Appendix B). Employees associated with Wiki Engagement Theory Three participated by reading, adding new content, with little to no collaboration. These subjects initially experienced negative affect but their feelings changed to positive after they interacted with the wiki. Other subjects who experienced negative affect such as frustration and discomfort [about the wiki] did not participate in the absence of manager endorsement and time allowed for the wiki.

Subjects associated with Wiki Engagement Theory Three who did participate, were motivated to use the wiki to address information-related problems, learn more about what was happening in the organization, create corporate memory, and to interact out of curiosity and for fun. Subjects who did not participate chose to avoid stress, spend their time satisfying other goals

and work expectations, and to honor traditional personal, social, and corporate norms. Extrinsic motivation according to the SDT scaled as External, Somewhat Internal, and Internal perceived locus of causality. Intrinsic motivation according to the sensitivity theory for non-participation behaviors included the desire for Order, Honor, and Tranquility. The desire for Power, Independence, Idealism, and Curiosity was experienced by those in this group who did participate.

Wiki Engagement Theory Four: Cultural Interference and Non-Collaborative Outcomes

In a traditional culture, where content is thought to be owned by authors (content ownership effect), employees experience negative affect and *do not collaborate* in a wiki.

Cultural pillars of content ownership and traditional culture, along with feelings of anxiety inhibited collaborative content development in the wiki as indicated in Figure 5 (Appendix B). Subjects did not collaborate in the wiki using discussion pages and did not change content authored by someone else. Subjects in this group experienced negative affect describing feelings of anxiety, fear, anger, frustration, nervousness, and loyalty to norms personal, social, and corporate. Employees described the need for process, authority, control, and security assurances. Employees felt it was rude, discourteous, and presumptuous to change someone else's words. Employees were fearful of insulting others, making incorrect changes, and frequently believed that content was owned by individuals.

Motivational goals to honor traditional norms, avoid stress, avoid negative consequences, protect customer and corporate information, and to avoid interpersonal events motivated non-collaborative behavior. Extrinsic motivation according to the SDT scaled as Somewhat External perceived locus of causality. Intrinsic desires for Honor, Order, and Tranquility motivated non-collaborative behavior.

Wiki Engagement Theory Summary

The findings revealed four unique combinations of theoretical concepts from qualitative analysis of interview and journal data. Each theory was formulated based on the prevalence of theoretical concepts, and relationships among contextual influences, behavioral goals, and emotional aspects of content development in the data. Varying depths of engagement were evidenced in wiki participation behavior varying from no engagement to collaborative content engagement.

DISCUSSION: MOTIVATION AND WIKI BEHAVIOR

Through interviews and personal journals, subjects described their experiences, thoughts, and feelings about wiki participation. Subjects openly shared stories and described feelings associated with their experiences in the corporate context. From a motivation viewpoint, subjects could express why they engaged in the wiki. Subjects did not however, indicate whether these reasons were extrinsic, intrinsic, altruistic, or egoistic. The WE matrix (refer to Appendix A) provides an example of the motivation analysis. The following sections distinguish types of motivation associated with participation (lurk, add content, collaborate), and non-participation (no interaction) wiki behavior.

Extrinsic Motivation and Wiki Behavior

Contextual influences were associated with extrinsic motivation along the SDT continuum ranging from most external control (extrinsic regulation) to the most internal autonomy (integrated regulation). Contextual influences were found to be extrinsic motivators that resulted in both participation and non-participation behaviors. For example, employees in the study were motivated to contribute when the wiki solved a problem for the company, and motivated to avoid participation when there was a threat of a poor performance review.

Most subjects expressed felt-freedom to participate, and those who participated were not inspired by anticipation of rewards or recognition, beyond base compensation. Organizational influences were classified as extrinsic motivators when control and competence information were evident in the data, and desired outcome was not expressed as pure joy derived from interacting with the wiki itself. The following provides examples of extrinsic motivation along the SDT continuum corresponding with various wiki behaviors:

- Required reporting of project work and pending performance assessments were identified as external regulation (compliance) motivation that resulted in participation behavior.
- Personal drives to avoid stress and honor traditional norms were identified as introjected regulation (self-control) that resulted in non-participation behavior.
- Personal desires for up-to-date information, to learn more about the happenings of the organization, and solving business problems were identified as identified regulation (personal importance, conscious valuing) that resulted in participation behavior.
- Personal drives for improved corporate communication, creation of new knowledge, and to avoid loss of corporate knowledge were identified as integrated regulation (congruence with self-values and beliefs) that resulted in participation behavior.

Extrinsic motivation was evidenced along a continuum ranging from purely extrinsic (externally controlled) to highly autonomous (personal volition and internalized value).

The antecedent or contextual conditions associated with extrinsic motivation included employment responsibilities, egalitarian and traditional cultures, grassroots influences, management attitude, privacy-oriented context, corporate conscience, and content ownership effect. Several other organizational influences were found in the data but not considered categorical. For example, writing criticisms, positive and negative peer attitudes (subjective norm), ease of use, and reprimands for inappropriate content were mentioned by some but not considered as pervasive in the research.

Positive emotions were associated with extrinsic motivation to participate, whereas negative emotions were associated with extrinsic motivation to avoid participation. For external regulation, both positive and negative feelings were associated with participation behaviors. Purely external regulation was associated with feelings of joy, interest, excitement, ambivalence, frustration, and nervousness about subjects' wiki participation behavior. Identified, introjected, and integrated regulation were associated with positive emotions when subjects participated in the wiki and negative emotions when subjects did not collaborate, or participate at all, in the wiki.

This discussion highlighted organizational influences, emotions, and types of extrinsic motivation associated with participation and non-participation behavior in the wiki. The SDT was used to distinguish extrinsic motivation types ranging in scale from high control to high

autonomy. Greater levels of autonomy were more prevalent as a motivator energizing and directing both participation and non-participation wiki behaviors.

Intrinsic Motivation and Participation Behavior

The intensity of intrinsic motivation when applying the sensitivity theory (Reiss, 2000) was an indicator of wiki participation behavior. Intense desires for power, independence, idealism, and curiosity resulted in wiki participation behavior. A summary of each intrinsic desire follows.

Power

Wiki leaders were challenged by implementing wiki technology and rolling it out to the corporation as a grassroots initiative—a challenge given a traditional culture of control and formalism. They derived satisfaction and joy influencing others and watching the wiki grow in value to the organization. At times, their leadership was authoritarian, a characteristic of the desire for power (Reiss, 2000), by requiring wiki usage in projects and instantiating wiki pages for targeted initiatives. Wiki ambassadors were excited to advocate for the wiki and to provide informal training. Managers, leads, and individual contributors (business and IT) described a sense of empowerment to read and contribute; this was especially the case for lower ranking employees who expressed a greater sense of self-value through wiki participation. Contributors felt competent when their material was referenced by others, leaving a sense of accomplishment in subject matter knowledge and technology mastery. Leadership desires were further evident in self-appointed wiki gardeners, modifying and reformatting content to improve wiki quality.

Curiosity

Curiosity was evidenced in anecdotal reports of curiosity about the wiki, the desire to learn it, independently, and joy in learning how to use it. These employees typically classified themselves as early adopters and delighted at the opportunity to innovate. Managers, leads, and individual contributors (business and IT) expressed feelings of joy, happiness, excitement, and enthusiasm just to explore [the wiki]; they were pleasantly surprised that the company had a wiki. Some described the wiki as a form of play, and a means to exercise learning. Others were energized by the content itself, i.e., to acquire new knowledge about the company, and about other employees through profile pages. Truth seekers desired high quality information, believing that errors got in the way of doing a good job, and described need for information accuracy.

Independence

Independence was evident in feelings of joy, happiness, and greater personal value derived from the freedom to add, change, and collaborate using the wiki. Managers, leads, and individual contributors (business and IT) expressed feelings of great liberation given the facility to publish information immediately, not having to endure bureaucratic red tape to get information out to employees. These individuals expressed frustration with routine formalisms and delays in publishing to the corporate web site. Wiki leaders felt irritated by those oppressively concerned about misuse, confidentiality breaches, and maliciousness; they were confident that employees would post appropriately. Several employees expressed the desire to

stay current with technology, keep technical skills current, and to avoid falling into technological ruts, i.e., maintain a level of technology independence.

Idealism

Managers, leads, and individual contributors (business and IT) shared feelings of joy, happiness, excitement, greater personal value, and passion through their expressed desire to create a better company. Leaders broke rules to get the wiki started, deviated from control and authority to create an egalitarian culture, and changed the ownership mindset to help people realize they were part of a larger organism. Wiki advocates wanted to make a difference by sharing ideas and co-creating corporate assets [in the wiki], correcting inaccuracies (even when feeling nervousness), documenting their knowledge (despite other demands), and influencing others to contribute (knowing about resistance).

Intrinsic Motivation and Non-Participation Behavior

The intensity of intrinsic motivation, when applying the sensitivity theory (Reiss, 2000), was an indicator of wiki non-participation behavior. Intense desires for control, honor, and tranquility resulted in non-participation behaviors in the wiki. A summary of each intrinsic desire follows.

Order

Managers, leads, and individual contributors (business and IT) reported feelings of anxiety, fear, and frustration caused by the wiki disruption of order and control, to which they were accustomed. Subjects not participating were frustrated, angry, and concerned that the wiki was not rolled out as a formal corporate initiative, did not follow traditional protocol of process, and threatened traditional personal, social, and corporate norms. Non-participants who tried the wiki (when forced) were frustrated when information could not be found and became defiant against future use. These subjects, from business and IT departments, also experienced anxiety that anyone could post, read, or change anything, at any time. Some perceived that a lack of planning on the part of leaders affected their desire to make time [for the wiki]. Non-collaborators felt that tone in writing could be misunderstood, emotions would be too strong to debate, and nothing would get done using wiki discussion pages. A key theme for non-participants, and participants, was the desire (or cultural conditioning) to collaborate using traditional methods such as face-to-face conversations, e-mail, e-chat, and group meetings. The need to bandwagon on the tradition of slow technology adoption was also evident.

Honor

Non-participants expressed a strong sense of duty to traditional personal, social, and corporate norms expressing feelings of anxiety, fear, and frustration when faced with an egalitarian cultural movement. Managers, leads, and individual contributors (business and IT) expressed the need to work within a traditional governance structure with controls, monitors, and authority. Employees felt a strong sense of ownership, in general, and non-participants were fearful of offending others by changing their work. Non-participants felt a strong duty to customers, and the company, by protecting privacy and proprietary secrets.

Tranquility

The aforementioned expressions of anxiety, fear, and frustration illustrated the need for tranquility among non-participants. The desire to avoid negative consequences from writing and changing content on the wiki was expressed by managers, leads, and individual contributors (business and IT). Non-participants were concerned about offending others, unfavorable performance evaluations, and exposing perceived personal inadequacies. The wiki was perceived as a surveillance medium that would expose individual weaknesses in technology and business acumen, along with lack of attention to detail. Seeking more peace in the workday, non-participants chose to avoid wiki participation.

Prosocial Behavior: Altruism, Egoism, and Wiki Behavior

Altruism and egoism were defined as voluntary and consciously made decisions to help others. Altruism motivates behavior to benefit someone else, with no expected reward. Egoism motivates behavior to help someone else, with an expectation of personal benefit. By definition, individuals working for a company exchanged skills and knowledge for pay, under monetary employment agreements. Therefore, definitions for altruism and egoism within a corporate context are needed to distinguish prosocial wiki behaviors where compensation was a variable in the employment equation.

Altruism in the workplace is defined in this research as a behavior that benefits the company, or others, through discretionary effort without anticipation of personal benefit such as increased compensation, bonus, or recognition. Egoism in the workplace is defined as a behavior that benefits the company, or others, through discretionary effort in anticipation of a personal benefit going above and beyond contractual employment compensation, bonus, and benefit agreements. Egoistic behavior further includes discretionary effort intended to reduce personal stress.

Many managers, leads, and individual contributors considered that participation was part of the job where the wiki was viewed as “just another tool” the company was using. Altruistic and egoistic behaviors were exhibited by wiki leaders and self-appointed wiki gardeners.

Altruistic Motivation

Altruistic motivation was exhibited by wiki leaders holding management positions who took personal risks to instantiate the wiki in violation, at times, of company rules and normative practices. Motives driving these decisions were strongly held beliefs, regardless of personal consequences, that the wiki would benefit employees and customers through the delivery of accurate and immediate information, and co-creation of content that would increase corporate knowledge. These leaders did not anticipate compensation of any kind for their actions associated with improving corporate knowledge.

Egoistic Motivation

Self-appointed wiki gardeners, who were leads and individual contributors, made a mission of content modifications that energized and directed their discretionary time. These gardeners were motivated to improve wiki content quality to reduce frustration of others,

improve information quality for others, and increase wiki usage to benefit the company. There was no anticipation of advancement, additional pay, or other compensation in these cases. Egoist behaviors were exhibited by gardeners and other wiki contributors editing content created by others to reduce their own feelings of frustration when incorrect information was discovered, and to improve search capabilities so they could find needed information (Coleman, 2011; Gears, 2011).

Motivation Summary

Extrinsic, intrinsic, altruistic, and egoistic motivation were found to energize and direct participatory and non-participatory wiki behaviors. Higher levels of autonomy were shown to have a greater impact on wiki behavior decisions than did purely extrinsic motivation. Decisions to participate were not incited by rewards or recognition beyond typical employment expectations. Required participation served as the purely extrinsic motivator that was necessary to “jump-start” some participants, resulted in negative feelings and damaged long-term participation for others, and was not needed for those who would have participated anyway. Higher levels of autonomy were associated with more sophisticated use of the wiki. Motives considered highly autonomous included extrinsic motives with very low external control and purely intrinsic motivation. Altruistic and egoistic motivation was also evidenced in the findings (Coleman, 2011; Gears, 2011).

CONCLUSION

This research showed that wiki technology performs differently in corporations than customary technologies used to solve business problems and improve productivity. Wikis facilitated social and professional interaction necessary for corporate knowledge creation and management. Wiki technology was a catalyst for open and exposed interaction among employees in a complex mix of organizational influences, personal, social, and corporate norms, feelings, thoughts, and varying motivation. Open, organization-wide publishing exposed perceived individual vulnerabilities and perceived risks, that many believed might affect performance assessments and corporate relationships (Coleman, 2011; Gears 2011).

Higher rates of collaboration were attributed to freedom to participate, unbound by corporate controls and authorities. Stigmergy was evidenced when egalitarian culture permeated traditional corporate formalisms and when employees were comfortable collaborating indirectly through wiki technology. For some, when open content development challenged traditional corporate governance structures wiki participation was negatively affected. This research suggests that egalitarian structures can be poised with traditional culture to increase participation behaviors in a corporate context (Coleman, 2011; Gears 2011).

This research showed that indirect collaboration using wiki technology performs differently in corporations where participation can be required and/or intrinsically directed. Wiki participation resulted in wiki participation behavior when managers and projects required wiki usage, but damaged future participation motives, for some. Motivation that scaled intrinsically resulted in positive feelings [about the wiki], more creative, effective, and collaborative participation behaviors. The research suggests that organizations have the opportunity to increase participation rates by inducing various types of motivation in different situational contexts (Coleman, 2011; Gears 2011).

Appendix A: Wiki Engagement Matrix

Cell Definitions and Motivation Interpretation Process

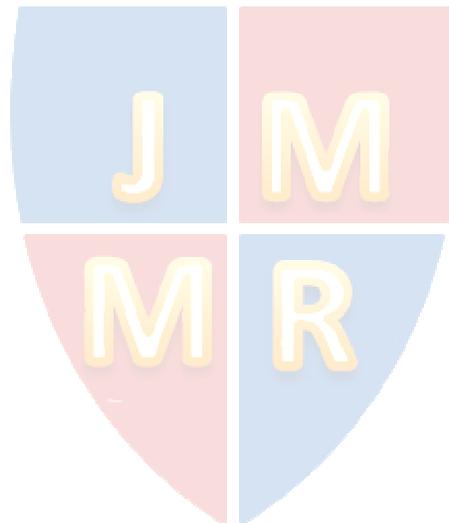
Contextual Influences	Motivation Type	Goals	Feelings
<p>Contextual Influences are elements in the domain that emerged as prevalent concepts in the data, i.e., something that was happening in the context; also considered “external events” coinciding with the Self-Determination Theory (SDT) (Deci & Ryan, 1985).</p>	<p>Motivation Type identifies control and competence factors along with Goals (in the adjacent column) to specify extrinsic and intrinsic motivation. The motivation types found are finally specified along with the Goals they are associated with in the adjacent Goal column.</p> <p>The cognitive evaluation theory (CET), a sub-theory of the SDT, assumes that all external events have both a controlling and informational aspect. The theory presumes that all people have psychological needs for 1) autonomy 2) competence (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b). The SDT assumes that controlling aspects of external events are believed to affect the need for autonomy. The competence information aspect is believed to affect the need for competence.</p> <p>The data analysis in this column began with interpretations of the controlling and informational, or competence modalities that coincided with the corresponding contextual influence, in accordance with the CET. Given some level of extrinsic control and competence indicators, the researcher concluded that the motivation type was extrinsic falling somewhere in the continuum of the motivation according to the organismic integration theory (OIT), a sub-theory of the SDT (Ryan & Deci, 2000a, 2000b; Reeve, 2005).</p> <p>Based on thorough descriptions of each intrinsic desire provided in Reiss’s (2000) 16 Basic Desires book, the types of Intrinsic desires were also evaluated and identified from interview data.</p>	<p>Each Goal is a reason given by subjects for “why” they participated in the wiki. These reasons are then associated with the type of motivation associated with the goal.</p> <p>Motivational goals were interpreted given definitions of extrinsic motivation and identifiable characteristics in the extrinsic motivation spectrum according to the OIT (Deci & Ryan, 1985; Ryan & Deci, 2000a, 2000b; Reeve, 2005). Egoism and altruism were further identified according to characteristics common to Myers (2002), Bar-Tal (1976), Batson, et al. (1987), Mastain (2006) and Penner (1995).</p>	<p>Feelings are emotion states that were documented from interview data. The Positive Affect Negative Affect (PANAS-X) (Watson & Clark, 1994) emotion adjective list was used to identify emotion synonyms that categorize emotion words as either positive or negative.</p>

Participation Behaviors

Participation: Added New Content (regardless of lurking or collaborative behavior)

Contextual Influences	Motivation Type	Goals	Feelings
Employment responsibilities + required use of wiki. (Theory 1)	<u>Extrinsic (Deci & Ryan)</u> <i>Control</i> : Wiki as a surveillance mechanism, performance objectives. <i>Competency</i> : Positive performance evaluations, evaluated on providing correct information (customer service), positive feedback from others.	<u>(Extrinsic Motivation Goals)</u> <i>External Regulation</i> <i>Goal</i> : to meet employment expectations, for favorable assessments of work, for commensurate compensation; to do a good job, be thought of positively by others.	Feels good, excited, ambivalent, frustrated that wiki use is required, frustrated it isn't used more, fear of technology, nervous about openness.
Project work managed in the wiki. (Theory 1)	<u>Extrinsic (Deci & Ryan)</u> <i>Control</i> : Performance objectives, project deadlines, team spirit, wiki as a surveillance mechanism. <i>Competence</i> : Positive evaluations, task achievement, team member feedback.	<u>(Extrinsic Motivation Goals)</u> <i>External Regulation</i> <i>Goal</i> : to satisfy performance expectations.	Ambivalent (part of being on a project), frustrated required to use it, happy to use it, interested, excited.
Egalitarian culture + grassroots influence + perceived value. (Theory 2)	<u>Extrinsic (Deci & Ryan)</u> <i>Control</i> : Persuasion, work, workflow status. <i>Competence</i> : Positive feedback and support from others, sharing of ideas, work progress and problem resolution. <u>Intrinsic (Reiss)</u> Power, Independence, Curiosity, Idealism.	<u>(Extrinsic Motivation Goals)</u> <i>Identified Regulation</i> <i>Goal</i> : to solve business problems. <i>Integrated Regulation</i> <i>Goal</i> : to improve corporate communications, share information, and collaborate with others.	Liberating, a sense of freedom, excited, empowered to openly view and contribute, enthusiastic.

<p>A culture bound by strict privacy rules that is sensitive to information sharing + corporate conscience. (Theory 2)</p>	<p><u>Extrinsic (Deci & Ryan)</u> <i>Control</i>: Recorded history of wiki activities, corporate conscience. <i>Competence</i>: Positive feedback from others, no security issues. <u>Intrinsic (Reiss)</u> Power, Independence, Idealism, Curiosity.</p>	<p><u>(Extrinsic Motivation Goals)</u> <i>Introjected Regulation Goal</i>: to share information without causing risk to customers or competitive advantage.</p>	<p>High degree of confidence that sensitive information will not be posted. Risk averse (ask for forgiveness rather than permission). Frustration that security is a concern.</p>
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Appendix B: Figures

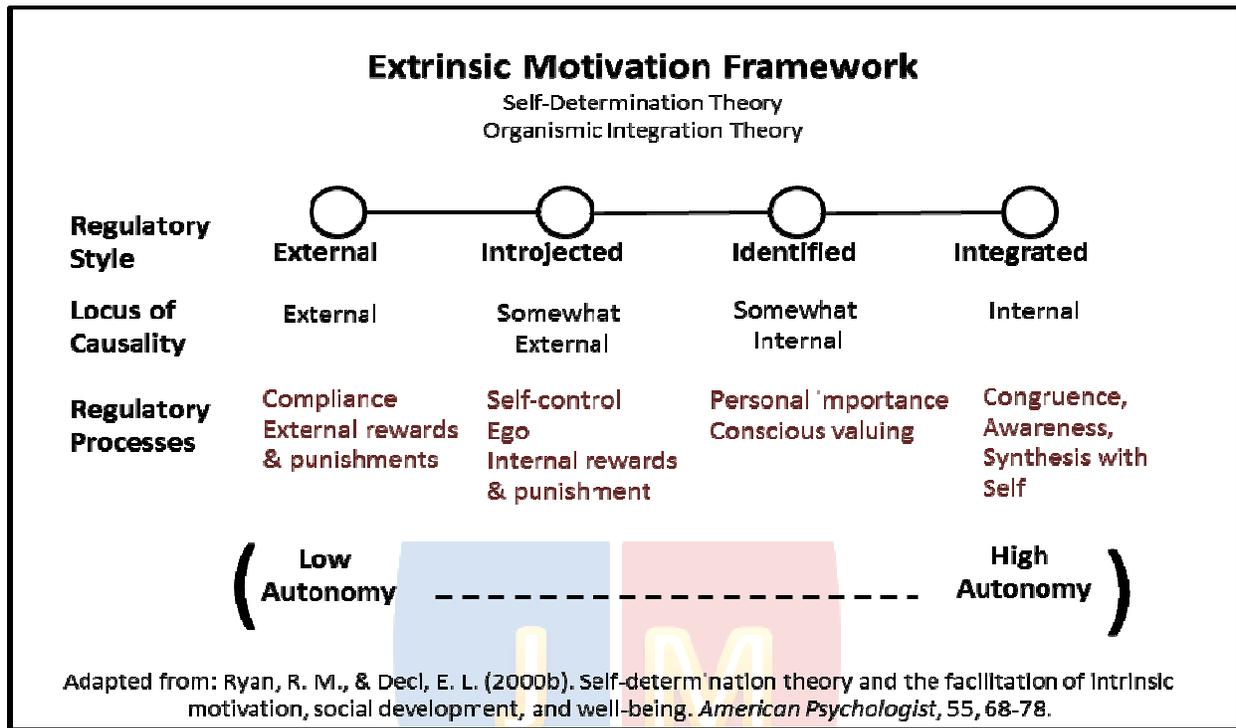


Figure 1 - Self-Determination Continuum of Extrinsic Motivation

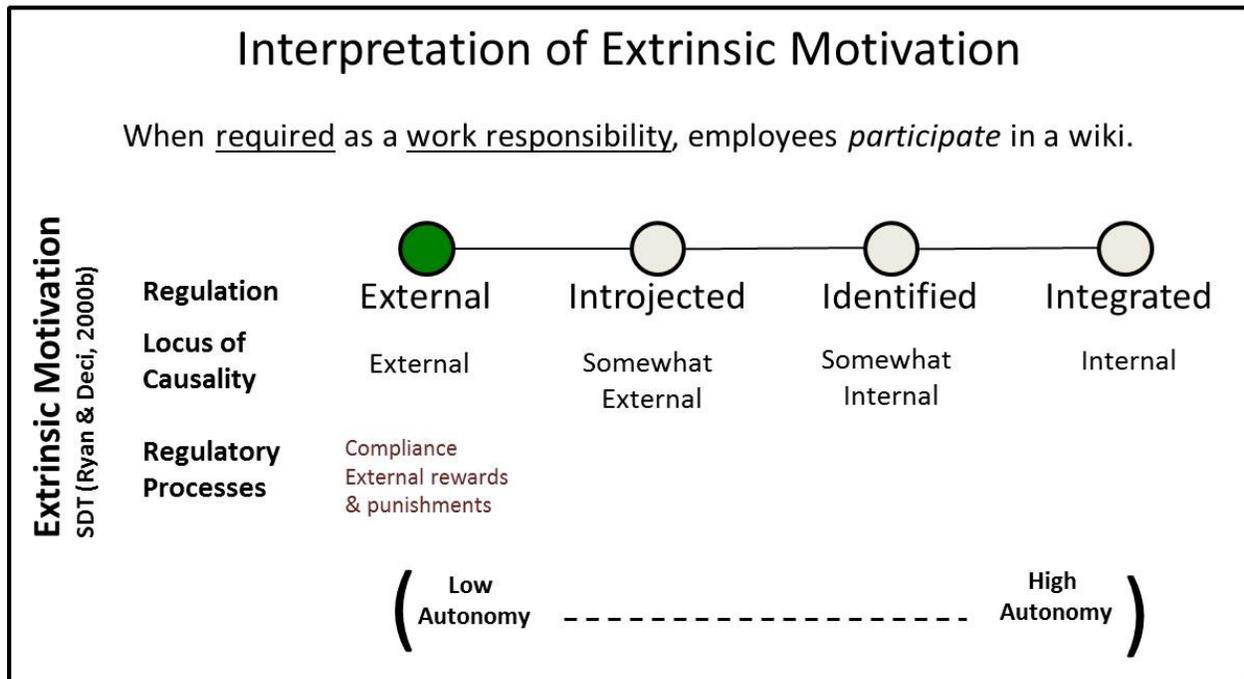


Figure 2 - Wiki Engagement Theory One: Enabling Culture and Collaborative Outcomes

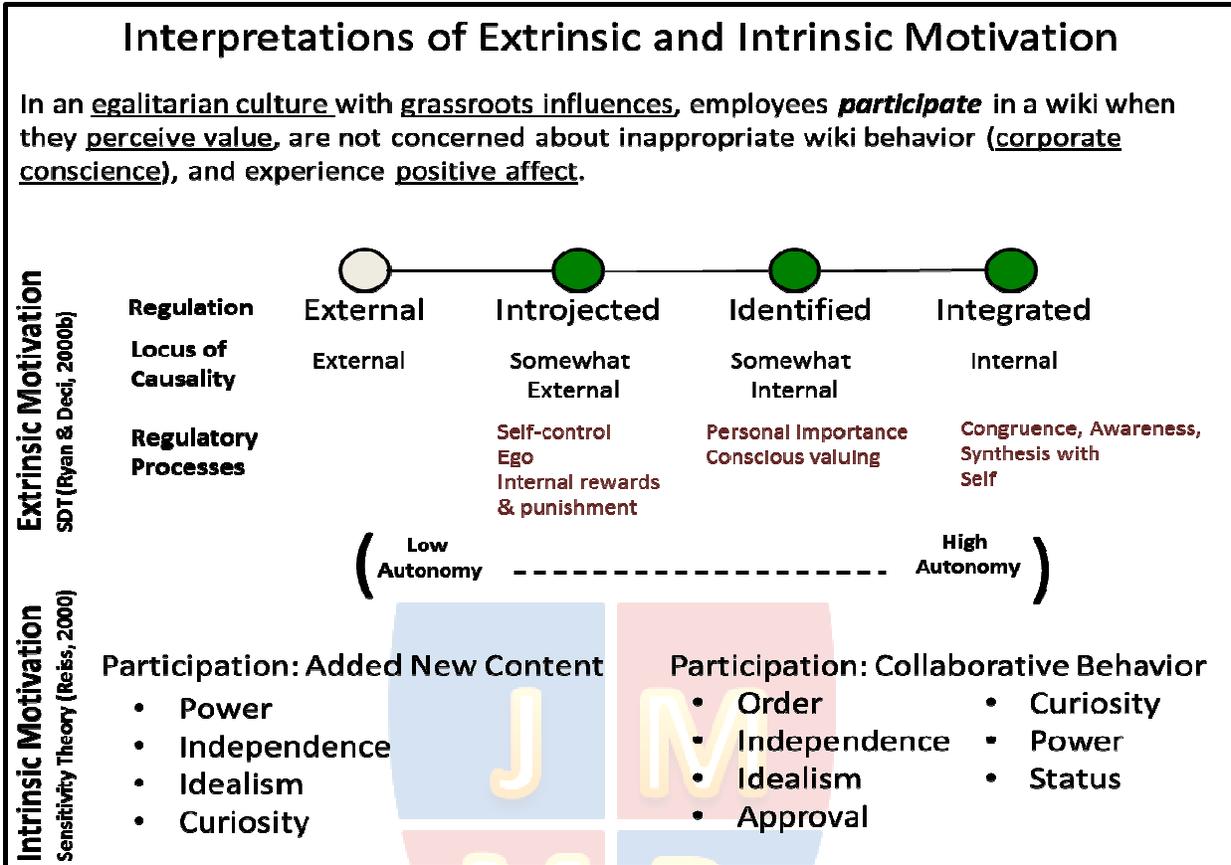


Figure 3 - Wiki Engagement Theory Two: Enabling Culture and Collaborative Outcomes

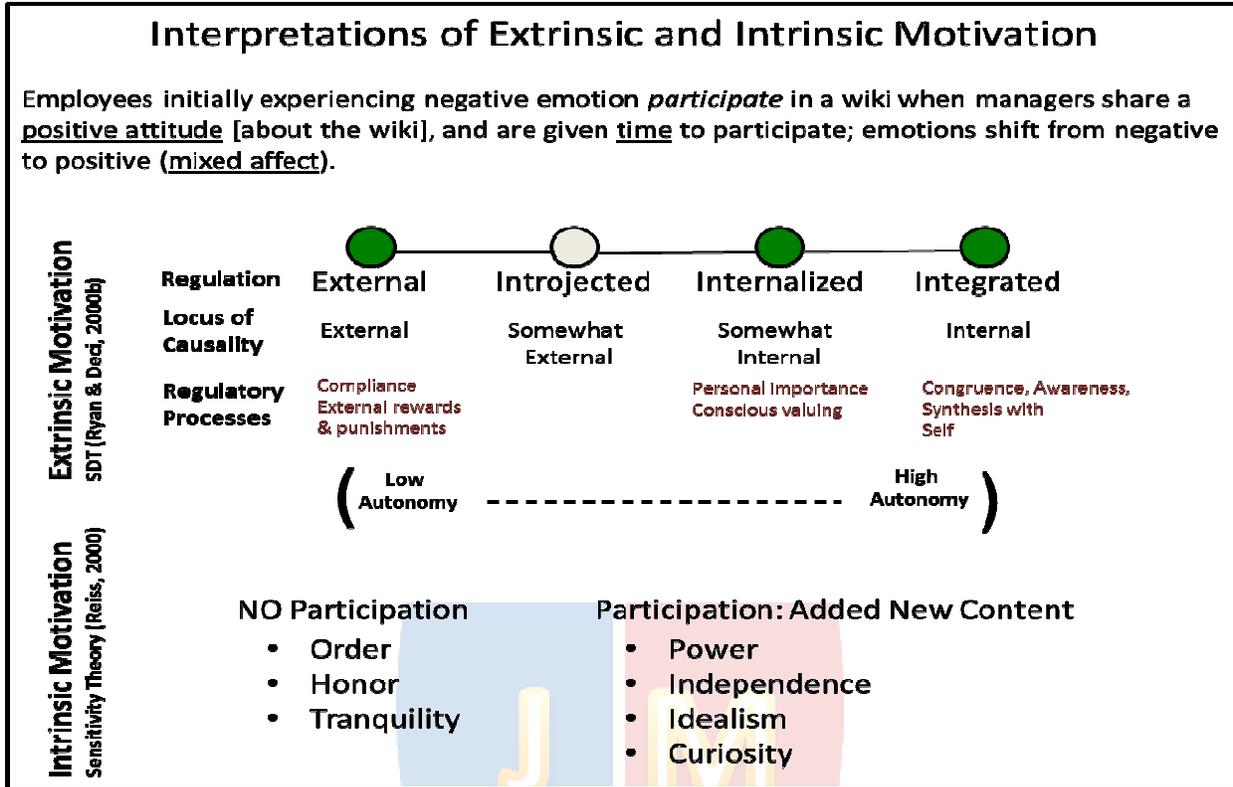


Figure 4 - Wiki Engagement Theory Three: Time, Management Endorsement, and Participation Outcomes

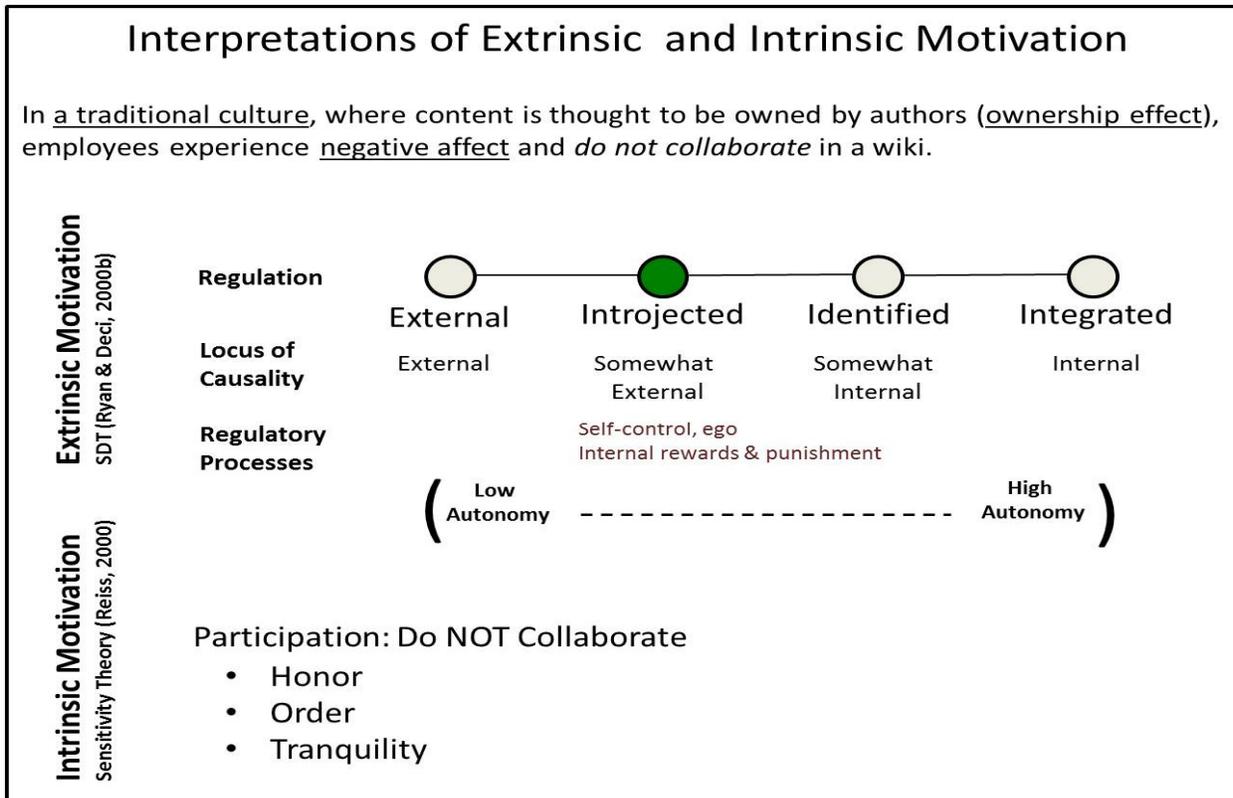


Figure 5 - Wiki Engagement Theory Four: Cultural Interference and Non-Collaborative Outcomes

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