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THE JOURNEY PROCESS

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The Journey Process

One of the principle challenges facing higher education today is that many students seem to be more interested in averting losses than achieving success (Nalley, et, al. 2011). Whether they are trying to prevent losing points on an exam, looking foolish answering a question in class, or selecting easy rather than difficult courses, students are reluctant to embrace uncertainty. Learning however is very much about taking a risk. It is about challenging oneself to tread into unfamiliar territory, develop a new set of skills and become comfortable with a previously unknown collection of ideas.

An aversion to loss is one of the central ideas supporting Prospect Theory (Kahneman & Tversky, 19xx). In a wide range of experiments, it has been observed that individuals more often than not choose the path that will minimize prospective losses rather than maximizing potential gains (Karle et. al., 2015; Pedace & Smith, 2013). This is no less apparent when observing student behavior. Selecting “easy” courses to minimize any potential negative impact on a student’s grade point average is one example. Another finds students insisting on a large number of assessments within a given course so that no single assignment will have a large detrimental impact on their grade.¹

Perhaps this is why games have demonstrated their effectiveness in promoting learning. They create virtual environments where the player can learn from their mistakes, second chances are part of the normal state of play and advancement along with achievements provide continuous positive reinforcement.²

One way to think about games is that they serve as a long intervention capable of changing the player’s mindset. Given the close association that players have between their ideal self (in game character) and their real self (who they actual are), success in a game environment has the potential to transform the way that a player thinks about their own self in very much the same manner that small interventions can change mindsets in learning environments (Dweck, 2006).

Whether or not a changed mindset might have a positive impact on learning depends to an extent on how it influences a student’s attitude toward risk. If a changed mindset enables the student to feel more secure about who they are and what they can do, they might reevaluate existing learning prospects in a way that alters their view of the choice set. If they believe themselves to be capable of learning and in possession of the requisite tools and skills, they are less likely to fear that a particular learning opportunity will undermine their self-esteem and adversely affect their grade point average.

To harness the power of gamification (using game mechanics in non-game situations) in combination with the insights associated with behavioral economics, we created the Journey Process. The Journey Process is a learning environment designed to empower students to think about change and the power of narrative as both a thought process and a means of communicating ideas in an understandable and engaging way.

As a teaching tool, the approach served as the foundation for the development of a website at EconJourney.com where we piloted a new way of teaching the Principles of Microeconomics at the University of New Hampshire. Over the course of a fifteen-week semester, as part of their coursework, students constructed their own narratives to help demonstrate how course models and theories connect.

Prospect Theory

Students in many ways are no different than any other human being that has an aversion to losses: everyone likes to win but they *really* hate to lose. Think about the typical person who enters a casino and places a bet. They are eager to place the first wager as unfettered optimism and the dream of

winning a large sum of money captures their imagination. Unfortunately, the odds are not in their favor and more times than not, they lose that initial wager.

A person who is risk averse might become more cautious having lost their initial bet. The opposite however is true for the individual who is loss averse. Once they have lost that first wager, an important shift occurs. The gambler has now lost money and if they walk away, they must accept the reality that they have suffered a loss. On the other hand, if they place an additional bet, they have the potential of erasing that loss.

Prospect Theory, an important foundational idea employed in behavioral economics suggests that gamblers are much more eager to place the second bet because it is no longer about winning, but rather it is about not losing. Instead of becoming more cautious, they in fact embrace even more risk because they hate the thought of losing more than they enjoy winning.

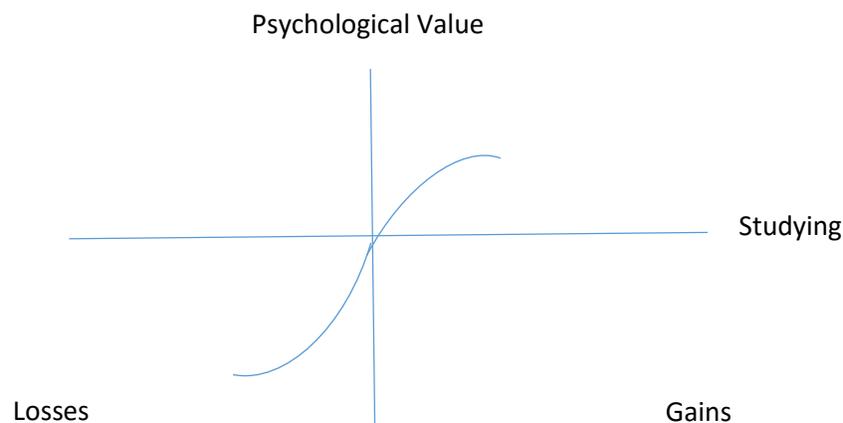
Prospect Theory is based on three core principles:

1. Choices (prospects) are evaluated in terms of a reference point. Outcomes that are superior to the reference point represent gains and those that are viewed less favorably are branded as losses.
2. Various options are subject to diminishing returns.
3. Losses are given more importance than gains.

Just as Prospect Theory can be used to explain human behavior in general, it also has applicability for understanding student behavior. For example, one of the decisions that a student makes on a daily basis is how much time to devote to studying. However, if we assume other things being equal (such as access to educational materials, baseline knowledge, or learning skills), then it is not difficult to imagine that studying, like many other activities is subject to diminishing returns. In other words, effort initially will increase the potential return in terms of a higher grade, but the more effort that is expended, the less of a contribution that additional effort will make toward a higher grade.³

The vertical line in Figure 1 represents the reference point students use to evaluate their potential success on an individual assignment relative to their view of their own ability.

FIGURE 1



An average student would view the likelihood of earning an A in a course as being less likely than a student who routinely earns the top grades in a course. For that average student, grades earned that are greater than a C represent a gain and those lower than average represent a loss. Thus an assignment to the right of the reference point represents one where the student feels confident that they can complete with a high degree of success. Hence completing that assignment will contribute to a higher grade in the course. In contrast, an assignment to the left of the reference point represents one where the student does not feel very confident at all and is likely to experience failure.

In comparison, when faced with a grade below what is for them acceptable, students often try some form of last ditch effort to avoid a bad grade. As a result, they might pull an all-nighter right before an assignment is due, resort to some form of academic misconduct to offset their lack of studying, or limit the amount of studying to only those topics they are gambling will be on the test or similar assignment. In other words, they embrace risky study strategies to avoid the prospect of earning a bad grade.

Toward a Theory of Learning

As it stands, Prospect Theory offers an important insight into how choices are made, but is silent in terms of how the choice set is constructed. Moreover, other than paying homage to the idea that more is preferred to less, offers little insight into why an individual elects to keep taking action over and over again. For example, if it is a question of winning or losing a sum of money, most individuals would choose to have more rather than less. However, what happens if the choice being offered has to do with something else?

In order for Prospect Theory to serve as the foundation for a theory of learning, it must not only explain how a student goes about constructing their choice set, but it also must explain what drives them to put themselves at risk every time they choose to learn something new. When learning something new is based on a mandate imposed by the State or an instructor, the question is perhaps moot. If instead, learning is something one chooses to do, is it possible to enhance existing sources of motivation to encourage greater productivity in learning?

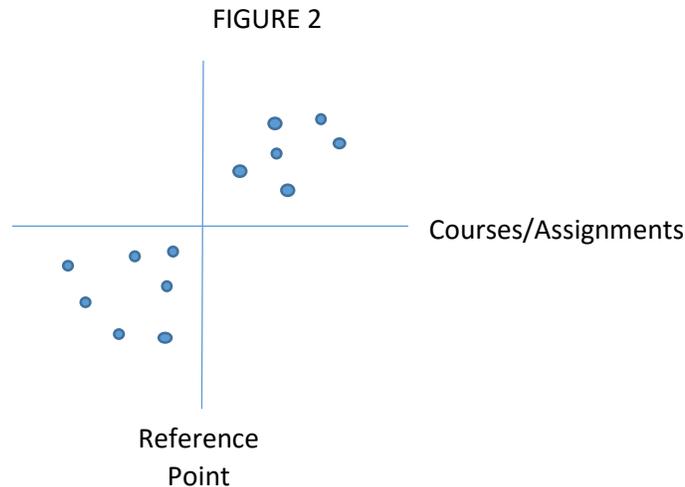
To develop a better understanding of how this might work, we need to introduce the concept of a flexible mindset. The degree to which learning takes place has much to do with whether or not the student believes they are actually capable of learning. The development of self-esteem and a positive self-image can lead to substantial improvements in learning. With the application of Prospect Theory, even greater improvement can occur by influencing the choices students make in terms of what is learned and how learning will take place.

Flexible Mindsets

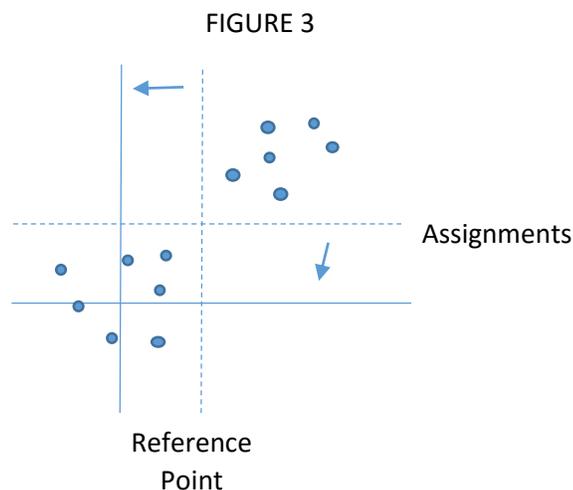
Learning at its core is about risk taking. It is about exploring unfamiliar territory where new concepts are to be learned and applied in various contexts. By creating an environment that invites students to put themselves at risk, they are more likely to place themselves in situations where learning can take place. One key element for fostering learning is the development of a strong sense of self in an effort to raise expectations and reduce the fears associated with loss aversion.

The development of a greater sense of self and a higher level of esteem has an important role to play by influencing the position of the reference point in a prospect-based theory of learning. The reference point used to evaluate the potential of various prospects to generate gains or losses is not something fixed at each moment in time, but rather can change with the acquisition of new knowledge, the development of new skills or the generation of new beliefs about oneself.

The willingness to take a risk and validation of that choice with modest success can lead to a positive affirmation of self. The careful cultivation of the belief that one can succeed has the power to change the position of the reference point used to evaluate various prospects. As students become more secure in what they know or believe that they have the tools to learn what they don't know, then more prospects will populate the potential gains rather than the potential loss side of the ledger. In doing so, students will be more inclined to take a risk and learn something new. This has the effect of causing the reference point to shift down and to the left.



In Figure 2, each dot represents a prospective course or assignment. Based on the student's evaluation of their own abilities, prospects to the right represent assignments or courses where the student believes they will be relatively successful and those to the left afford the very real possibility of failure. The probability assigned to success or failure depends on how secure the student feels (their reference point) in their abilities. The more secure they feel, the more assignments or courses will be evaluated as leading to a positive outcome and fewer with a negative one.



If students can become more secure in their knowledge, skills and ability to succeed in their learning efforts, then more prospects will show up on the gain side relative to the reference point. With fewer potential losses to be concerned about, students would be more likely to take a risk on something new. This is illustrated in Figure 3.

If it is possible to improve student's perceptions of their self, then fewer prospects (assignments and/or courses) would carry with it a real possibility of loss and hence they would be more inclined to take a risk and study something new and less familiar. In other words, students will take a risk and try something new if they perceive the likelihood of failure to be lower. They do this by gaining a better sense of self in the belief that they possess the requisite skills, knowledge and experience for academic success.

Games and Learning

Defining the choice set is an important component of any theory of learning, but as importantly is understanding what serves to motivate the student to act by selecting one of those choices and then doing their best to succeed. The choice of what to learn and the act of learning are two distinct parts of a single process. How much is actually learned once the choice to learn has been made is to large extent determined by the design of the learning environment. Here, games can provide us with valuable insights into what is required to create an effective learning environment.

An example of a type of game that provides a learning environment that encourages risk taking by strengthening a sense of self can be found in many Role Playing Games (RPGs). In a typical RPG, the player creates an identity that grows and develops as knowledge is gained, relationships are formed and challenges overcome. The structure of the game itself generally involves various missions where key pieces of information are needed in order to develop an understanding of a particular problem that must be addressed for the game to advance. With that knowledge in place, the player's character takes action to acquire additional points, items of value that increase the probability of success within the game, or the experience necessary to move on to the next level.

While games in general may differ in terms of the level of autonomy that is given to the player, in each game the player is free to a greater or lesser extent to follow the path of their choosing. As such they *generate* what happens as their character advances through the game.⁴ Taking action creates opportunities for the player to learn the most effective way to advance play and achieve a set of goals.

Within the context of a game, players need to become familiar with a foreign environment created by a team of designers. They are essentially a "stranger in a strange land" and need to make sense of how this virtual world works and how to overcome the challenges they encounter in order to achieve some objective. They must take information from a variety of sources in order to construct meaning and a deeper understanding of this new reality. By filling in missing gaps with information they acquire as they have one experience after another, they are able to revise preconceived notions or develop a new understanding of what is required for success. Their experiences promote *self-explanations* that enhance their ability to achieve success in the game.⁵

The game would not be very interesting without the existence of challenges that must be overcome to unlock valuable information or reach the next level. Through the careful introduction of intelligent obstacles (*desirable difficulties*), designers can create challenges that motivate the player to gain the knowledge or skill required for success.⁶ Introducing a degree of difficulty sets the stage for the player to make mistakes. However, for the game to advance, the player must then learn from their mistakes. Learning from their mistakes enables the player to feel that they have mastered a new skill or piece of knowledge which can contribute toward a change in their mindset.

Another way of thinking about these challenges is that if they are designed properly, they can serve as small interventions during the course of a longer game capable of changing a player's *mindset*.⁷

In other words, it can contribute to the development of a flexible mindset that fosters the belief that progress in the game moves hand in hand with the development of new skills and knowledge and with that change, goals can be achieved and the game ultimately won. As players feel empowered by the success they achieve from the actions that they take, they are more motivated to play the game all the way through to completion.

Mindsets however will only change with appropriate *feedback*.⁸ Many games use mechanics designed to help the player track their overall progress, keep count of achievements earned, lives potentially lost (left) and other pertinent data relatively to their performance within the game.

Combining Prospect Theory and Gamification

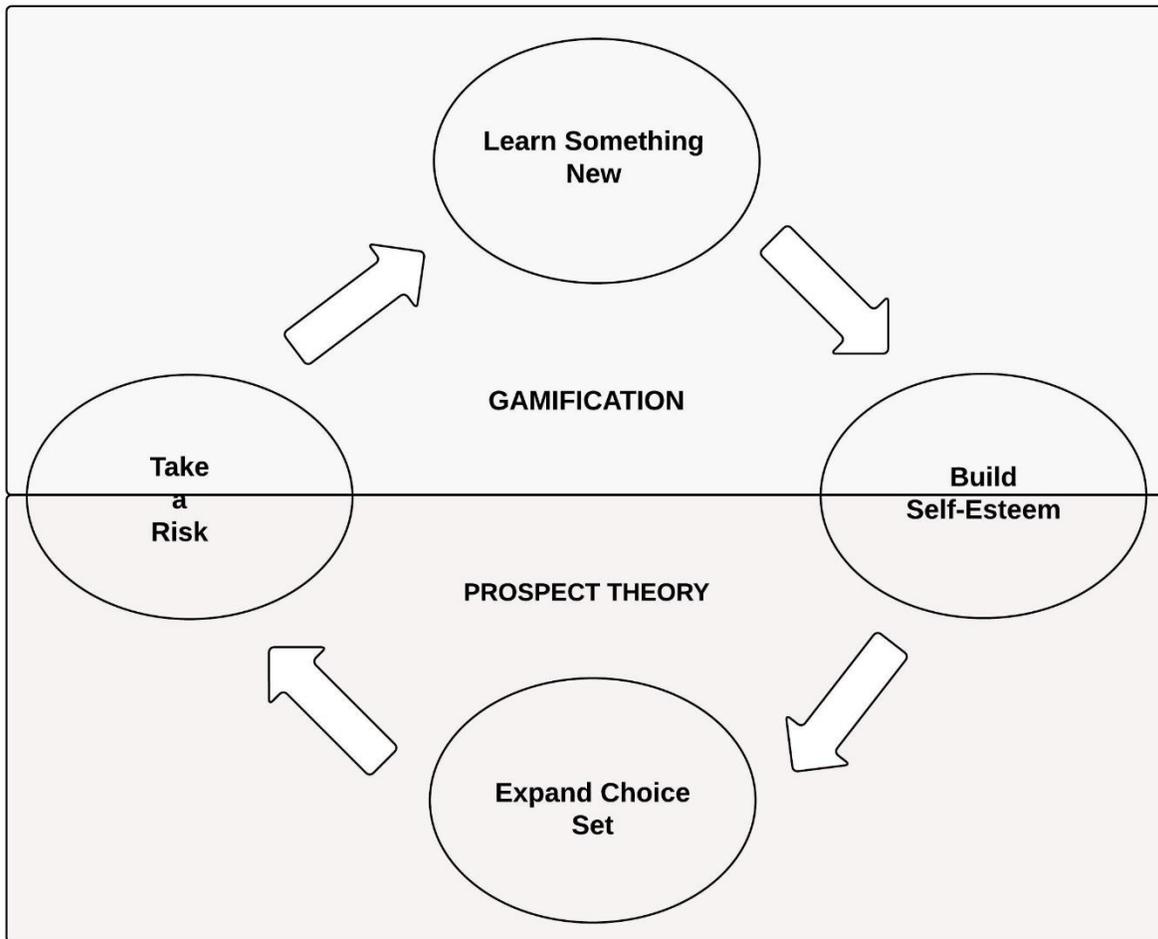
Prospect Theory enables us to explain why despite the high costs and large potential return associated with a college degree, many students choose not to make the most of their collegiate experience. The fear of looking stupid or feeling incompetent can serve as a serious impediment to the learning process where venturing into uncharted territory is often a requirement for learning to take place. Thus while Prospect Theory might help offer insight into student behavior, it is silent in terms of providing a roadmap for turning loss aversion into a positive theory of learning. Something must encourage the student to take that initial risk and their subsequent success must lay the groundwork for additional risk taking in order for learning to become an ongoing process.

It is here that Gamification can be used to create a complementary process that can be combined to create a more complete theory of learning. Using game mechanics, a learning environment can be created that minimizes the negative effects associated with a lack of success while offering opportunities for building self-esteem; a requirement for moving the reference point used to evaluate prospects.

It is not simply about making learning fun or creating an appropriate reward structure. Rather it is about turning failure into a welcome occurrence. From this perspective, failure is viewed as a prerequisite for success rather than an indictment of a student's inability to succeed. The ability to repeat an activity or assessment multiple times until success is achieved is only part of the equation. The other is to create the expectation that success is not immediate, that it is normal to fail as part of the learning process.

Success then builds self-esteem and as the student begins to understand that they now understand or can do something that was previously unattainable, they discover that their choice set has expanded as more courses/assignments are viewed positively. With an expanded set of prospects (opportunities) for learning and a growing belief that they can overcome whatever obstacle they might find standing in the way, students are more willing take another risk. This process is illustrated in Figure 4.

FIGURE 4



Designing a new Dual-Purpose Pedagogy

What makes games unique as a learning environment is that they often meld together the best of what might be described as classroom and experiential learning. To advance play in many games, information must be gathered, knowledge acquired and skills developed; similar to what takes place in the traditional classroom. Much of what is acquired must then be applied to actively solve problems that exist in the game environment. This type of problem solving is similar to the experiential learning found in internships, study abroad experiences, externally focused project-based courses or community service projects.⁹

Replicating the experiential learning experience in an environment without the benefits of real concrete activities and relationships can be challenging at best. A virtual game environment can offer a close approximation. The challenge however is exacerbated when neither exists. In that case learning must take place by proxy and a different type of supporting structure must be inserted into the process.

Learning by Proxy

Within the context of traditional experiential learning, the student interacts with real people in real working environments to solve real problems. They learn firsthand what is required for success and some encounter very real failure as part of the experience. In the context of many video games, players however are one step removed from the experience itself. Although the virtual environment provides similar visual cues, social interaction and prospects for success or failure, it is simulated rather than real. Does it matter?

A well-designed Role Playing Game (RPG) has the player creating a characters that undertake a journey of self-discovery and knowledge acquisition similar to what is found in higher education. Often these characters (avatars) are idealized representations of whom the players hope to be or become. One of the motivating factors driving their game play is to see their online identity grow in stature and gain mastery over a set of skills that can be deployed in order to accomplish something of value.

For virtual experiences to have a similar impact as real ones, there needs to be a strong connection between the characters that we create in game environments and the real self that exists in the physical realm. Recent research suggests that gamers develop an affinity with the characters that they create in game environments (Yee & Bailenson, 1977; Klimmt et. al. 2009, Przybyliski et. al. 2012). In a synthetic environment, individuals can create avatars that are more in keeping with their ideal self (who they would like to be) rather than their actual self (who they are). One example is the Proteus Effect (Yee and Bailenson, 2007). The Effect is based on the idea that how individuals perceive themselves in a synthetic environment can influence real behavior. In one of their studies, the data showed that participants assigned taller avatars behaved more confidently than those with shorter ones.

The connection between online persona and real personalities is not restricted to games. According to J. Elwell, the difference between the Web 1.0 and the Web 2.0 is that individuals no longer must make a conscious decision to go online, rather they exist in both real and virtual spaces simultaneously. Individuals are tethered to their smartphones and other devices in the Internet of Things in such a way that makes it possible to live simultaneously online and in the real world. Thus we live in a feedback loop between the digital and the analog that creates a dialectic where what happens in one domain informs the other. As a result, we possess “many exoselves, existing as a network of digital identities that increasingly bear an existential equivalence to embodied, analog identity (Elwell, 2014 p. 237).”

As the lines between the real and the virtual continue to blur, there will be less and less of a reason to believe that experiences in one realm will have an impact on identity while those in the other will not. The rise of social media and the Internet of Things is rapidly giving way to the Internet of Life. Real events become online posts or pictures as the event unfolds in real time. Online messaging accompanies real time conversations as social networks expand beyond physical space and time. As a result, it may be reasonable to conclude that online experiences are not all that different from real ones. If that is the case, then it may be possible to attain similar learning outcomes regardless of whether they take place in real, synthetic or imaginary realms.

The Power of Storytelling

When the learning experience is not supported by a real or virtual environment where content and context are provided, the student must rely on their imagination. In this case the experience is two steps removed from reality. Therefore if all we have is the imagination, then students, now cast in the role as designer of their own learning experience, must be given the tools needed to buttress their imaginations to create a suitable learning environment. The most important of these is story.

The rise of social media has done more than turn today’s undergraduate student into a multi-modal consumer of information. It has turned them into storytellers who share their own personal

journeys on a daily or even moment by moment basis. As a result, story has taken on a significance that has gone far beyond a means for entertainment or a method for disseminating knowledge.¹⁰ The stories we tell about ourselves create a form of expression that helps to develop a sense of identity and place within a social fabric consisting of friends, relatives, and peers.

Thus it seems only natural that if a student, having invested heavily in the development of this human capital (the ability to tell stories), is growing accustomed to using story as a form of personal expression, that it may make sense to also use it as a tool for learning. Instead of asking students to develop a skill set that is divorced from what they employ in their private lives, more successful learning outcomes may be achieved with a melding of their personal and professional lives.

A good story brings a particular situation or experience to life in the imagination of the listener. If it is effectively told, the listener can almost use their own senses to share multiple facets of the experience. In this way the imagination can recreate many of the cues found in a virtual or real environment.¹¹

Take for example the story of Dorothy in the Wizard of Oz. A tornado strikes Kansas and Dorothy is taken to a foreign land (her concrete experience). The desire to return home starts her on a journey along the Yellow Brick Road as she travels to the Emerald City. She *reflects* on the importance of intelligence, empathy and courage by *observing* the behavior of her new friends (scarecrow, tin man and lion) as she makes her way along the yellow brick road. To obtain what her heart desires most, she must use everything she has learned to *conceptualize* a plan designed to defeat the Wicked Witch of the West.¹² When circumstances look their bleakest, she is nonetheless able to take *action* and achieve her goal of returning home to friends and family.

When viewed from this perspective, there does not appear to be a significant difference between the fictional Dorothy and a real student who undertakes an internship, study abroad adventure or engages in some other type of experiential learning experience. The student finds themselves in an unfamiliar environment that prompts them to question how they thought things were actually supposed to work, leads them to revise their understanding and modify their behavior to achieve success.¹³

The Journey Process

The advantage of a concrete real experience or the synthetic world found in a carefully crafted video game is that much of the staging required for some form of experiential learning is in place. Necessary connections can be created with the help of a faculty advisor or are embedded within a carefully designed structure in a way that learning objectives emerge as part of the discovery process.

When the imagination is the primary mechanism for creating both the scaffold and the content, it is easy for a student to get discouraged. In designing the Journey Process, we attempt to provide the tools and guidance needed so that a student can construct their own imaginary environment and undertake the equivalent of an experiential learning experience. However, instead of a concrete experience, the Journey Process asks the student to create an imaginary one through the construction of a story. However, it is not just any story, but one designed to serve a particular purpose that goes beyond an understanding of course content. It is one designed to build self-esteem and demonstrate the power of knowledge as the means to improve the existing order.

To empower students, a familiar story archetype is used in the form of the Hero's Journey as a basic foundational element. Based on Joseph Campbell's (1968) monomyth, this basic archetype can be found in well-known characters like Dorothy in the Wizard of Oz, Luke Skywalker from Star Wars, or Moses in the Old Testament. The Hero's Journey is essentially the story of an individual whose contentment with the existing order is torn asunder by some crisis. In an effort to restore the past, the person who is reluctantly cast into the role of hero must set out in search of the knowledge needed to resolve the crisis. As she embarks on a journey fraught with challenges, friends, enemies, successes and

failures, she eventually gains the knowledge needed to repair the damage and hence “save the day.” Because of its universal application, the concept of a hero and the triumph of good over evil has become a fundamental pillar supporting modern culture. As Daniel Kahneman (2011) remarked, we each like to think of ourselves as the hero of our own story.

To turn Campbell’s Hero’s Journey into a framework capable of supporting the development of a student-driven story, we divided the Journey Process into twelve stages. To assist the student with the construction of their own narrative, the twelve stages are broken into three chapters (with each chapter consisting of four stages each). Thus the story can be thought of as beginning with the first chapter where existing conditions are assessed, a hero identified, solutions are not as obvious as they seem and resolution can only be achieved with the pursuit of new knowledge. In the second chapter, the hero of the story must travel to a new place where life is substantially different and new experiences form the basis for fashioning a solution to the problem that set in motion the journey. The third chapter is one of revelation when mysteries are revealed, answers are discovered and the hero must decide how best they can become a force for good.

Each stage is matched to a chapter of the textbook and the three most important concepts are introduced in an accessible manner in the form of Snackable content. Knowledge of the concepts is enhanced through the use of challenges. Personalized writing prompts are employed to assist the student in making the connection between the concepts and their own personal experiences. Finally, the student is asked to put it all together in the form of a coherent narrative that ties each of the stages and chapters together.

Snackable Content with Seductive Details

The Journey Process is first and foremost about learning important course concepts in the context of writing a coherent and cohesive narrative. Thus each stage begins with an introduction to the three most important concepts found in the companion material located in the course textbook. Recognizing that despite their best efforts, students are not reading the textbooks produced by the major publishers (Burchfield & Sappington, 2000; Clump et. al. 2004; Sappington et. al., 2002; Sikorski et. al. 2002) we introduce the material in a substantially different form.

Perhaps it should come as no surprise that the use of colored ink, photos, boxed content and condensed chapters, pales in comparison to the Snackable Content (ideas broken down into bitesize chunks) found on many websites. Yet it is in the form of prose riddled with seductive details designed to gain attention that is swiftly becoming the primary means for gaining information. Modern web-based content is designed to arouse the senses and elicit a sufficiently strong reaction that viewers feel almost compelled to share the post, picture or video with a friend. The objective is to get a message to go viral thereby creating something of a “phenomenon” capable of creating fame and/or fortune. Therefore Snackable content is prized more of its entertainment value than the ability to accurately convey important information to the reader. In many ways it appears to be all about the seductive details (interesting but irrelevant adjuncts) and little if anything else.

However, the creation of a learning experience where students are exposed to new ideas and encouraged to use those concepts in a relatable way that is meaningful for them, requires walking a fine line between presenting material in a manner where it is interesting enough that students actually want to read it, while at the same time, ensuring that the inclusion of seductive details proves not to be too much of a distraction. In a recent study (Niman, Benassi and Overson; 2015), students had a statistically significant preference for content presented in a Snackable form, but demonstrated inferior learning outcomes.¹⁴

Situational primes with Intelligent Obstacles

To encourage students to reflect on the opening passage found in each stage, we created a challenge designed to have them think more carefully about the key concepts discussed. Rather than designing the challenges as an assessment mechanism, they were used as a teaching opportunity aimed at reinforcing concepts and demonstrating logical linkages.¹⁵ Each challenge contains a set of three multiple choice questions designed to assist the student in working through the material. Rather than thinking of the questions as a quiz, they are used instead to introduce what Bjork (1994) has referred to as “desirable difficulties.”¹⁶

The purpose of the challenges however extends far beyond a device designed to support the learning of a particular set of concepts. They were also written to provide a coherent narrative that spans all twelve stages and also follows the form of the Hero’s Journey. In this way, they become a working model designed to demonstrate how the concepts can be combined to create a story. The challenges are in essence a story within a story serving as a template for the construction of the student’s own narrative.

In addition, the challenges are designed to reinforce both the idea of a growth mindset and create a situational prime designed to encourage students to think of themselves as the hero of their own story. To empower students in a way that enables them to believe that they have the power to solve problems that extend beyond the confines of an individual course, they need to believe that they are capable of developing the skills and mastering the knowledge needed to make a difference. In other words, the formation of a growth mindset.

Dweck (2007) demonstrated that with a growth mindset, students believed that they can develop the capabilities needed to take on new challenges and succeed. In contrast to a fixed mindset where students are fearful of mistakes; leading to the inference that hard work merely suggests lower intelligence, students who have developed a growth mindset take on new challenges, believe that effort enhances ability and like to confront and correct deficiencies (Yeager and Walton, 2011).

For example, one of the primary characteristics associated with heroism is a selfless willingness to help others.¹⁷ Nelson and Norton (2005) show how the concept of a superhero can be used as a subtle priming technique to encourage volunteerism. In their study, individuals were primed by having them think about a helpful category (e.g. superheroes) or an exemplar member of the community (e.g. Superman). Their goal was to determine if situational primes could cause people to think of themselves as being more helpful and cause them to predict more helpful behavior in the future. The results of their study suggest that heroism can be used successfully to promote selfless behavior, in both the short-term and long-term.¹⁸

Self-Explanation with Personalized Prompts

Once the challenge for a particular stage has been completed, the student is now asked to reflect on the concepts and relate them to an event in their own life. The ability to explain something to oneself has been shown to have a positive effect on learning outcomes (Chi et. al. 1989) across a wide variety of environments (Chi 1994; Pirolli 1994; Recker 1995; Wolf, 2005) and instructional forms (Ainsworth 2003; Roscoe, 2008; Trabassio 1996). Self-explanation works by helping learners identify gaps and fill in missing information. It also helps students to repair and revise their understanding of instructional material that conflicts with their existing mental model (Chiu and Chi, 2014).

In an effort to provide some structure to the writing process, prompts were designed to assist the student in thinking about how the previous content might be internalized to develop a better understanding of something that actually occurred to them. Embedding prompts within an active learning environment has been shown to be an effective strategy for encouraging self-explanation (Bielaczyc et. al.1995; McNamara, 2004; Renkl, 1997; Griffin et. al. 2008). These prompts serve as a form

of guidance that encourages the student to reflect on what has been presented and to think about what it means in a broader context.¹⁹

By asking the student to take a concept and relate it to their own life, the goal was to take advantage of the potential learning gains associated with personalization. The literature suggests that material that is personalized in a way that speaks directly to them can have a significant impact on the learning process (Mayer et. al., 2004; Ginns et. al., 2013). Our own research suggests that when students were given one of three treatments that delivered the same content in very different ways, the personalized version had the greatest impact on those students that were both unfamiliar with the material and have struggled with learning in the past (Niman, Benassi and Overson; 2015).

Narrative

While story is a prevalent form of communication, modern digital media has turned it into a fragmented series of tweets (Twitter), individual posts on various walls (Facebook), pictures that may or may not disappear (Snapchat and Instagram), anonymous comments (YikYak), or short videos (Vine) to just name a few. As a result, today's student is losing the ability to weave together divided content to develop a coherent thread capable of supporting the construction of an engaging story.²⁰ Yet it is the ability to create a coherent narrative; to effectively put together the pieces of the puzzle in an effort to reveal the larger picture where deep learning can take place.

The Journey Process is predicated on the need to discover a solution to a problem that is so fundamental, that the state of the world (as imagined) is contingent on the formulation of a solution. In constructing a coherent narrative, the student eventually discovers that the key to success rests on their ability to frame the problem of scarcity in a way where action can be taken and some form of resolution achieved. It is about synthesis: the discovery of patterns within patterns. This is where the burden on the imagination is the greatest, but also where the largest learning gains can be obtained.

It is narrative with a purpose – a transformational exercise that takes place with the development of a transformational story where a hero emerges; one capable of making an important contribution toward solving a problem of epic proportions. It is designed to empower students to believe that they can make a difference. That the acquisition of knowledge gives them the power to develop their own individual talent and channel it to do something of significance.

Concluding Remarks

One dramatic change associated with the rise of the Internet of Life is that everyone is becoming a teller of stories. In recent times, storytelling was a specialized skill left to the creative artistry of those in Hollywood able to bring their vision to the screen, in the music performed in local bars or physical media, or the books penned by a select group of authors. Now everyone not only has access to the tools needed to create a story, but also to a seemingly unlimited distribution network capable of sharing that story across the globe. As a result, story has taken on a significance that has gone far beyond a means for entertainment or a method for disseminating knowledge.

While storytelling has always been a tool for sharing ideas and inspiring action, it has become even more important as the line between our online and offline identities has blurred to the point where the truth begins and ends in the stories we tell about ourselves through the use of social media. Yet these stories that we tell about ourselves help reinforce the confidence needed to take action; particularly when outcomes are uncertain.

As the boundaries between the real and the synthetic have blurred dramatically, the same may be true between the imagined and the real self. By having the student write a story with a character of their own creation who undertakes a hero's journey where they must learn important concepts in order

to successfully overcome adversity to “save the day,” it not only asks the student to take a lead role in the construction of the narrative, but it also has them creating a character that must take action in order to achieve success.

Just as their character must learn, the student does as well if they are to acquire the concepts essential for their story to advance and their character to develop an understanding of what is needed to solve the crisis and achieve victory. Thus as their character undergoes a learning process as part of a constructed narrative, the student is actually experiencing a similar one. However, their experience is not a concrete one encountered in the real world, but instead is an imagined one.

The Journey Process uses game design principles to create a robust learning environment that mirrors the structure and skills required for success in an experiential one. By walking students through a logical thought process, it assists them in building associations between what appear to be a series of disconnected ideas. By having them apply these concepts within the context of a story line that they develop, they begin to see their applicability toward solving a problem that is meaningful to them. In turn, it empowers them to think about change and the power of narrative as both a thought process and a means of communicating ideas in an understandable and engaging way.

What a story-based approach to learning economic principles suggests is that rather than turning the educational process into something that is disconnected from a student’s life, it can instead become just one more extension of those daily activities that leads them to consider who they are and how they fit within the broader social fabric. The stories we tell about ourselves help us to establish a sense of self that can serve as the foundation for acquiring the knowledge and skills that lead to personal success both in the here and now as well as into the future.

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NOTES

¹ Having a large number of small valued assignments is similar to the behavior of rational investors who construct diversified portfolios to minimize risk.

² This is of particular importance in subscription-based programs where the goal is to encourage play for as long as possible in order to maximize revenue per player.

³ Think in terms of the first time one reads a chapter in a textbook how much knowledge is gained. Now think about the third, fourth or fifth time. Perhaps something additional is gained, but nowhere near as much as the first or second time.

⁴ Learning outcomes improve when students generate some of the material themselves (Thomas & Rower, 1986; Bertsch et.al., 2007; Bertsch & Pesta, 2014)

⁵ The ability to explain something to oneself has been shown to have a positive effect on learning outcomes (Chi et. al. 1989) across a wide variety of environments (Chi 1994; Pirolli 1994; Recker 1995; Wolf, 2005) and instructional forms (Ainsworth 2003; Roscoe, 2008; Trabassio 1996).

⁶ The introduction of “desirable difficulties” Bjork (1994) that makes the material less accessible can lead to superior learning outcomes. Overcoming challenges as part of the learning process tends to increase long-term retention and transfer (Bjork & Bjork, 1992).

⁷ The belief that the ability to learn is not fixed, but instead can grow and develop over time and thus have a positive impact on learning outcomes (Yeager & Dweck, 2012; Yeager & Walton 2011; Dweck, 2006).

⁸ Several meta-analyses conclude that feedback can substantially improve student achievement (Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute 2008).

⁹ Much of the discussion centered on experiential learning stems from the work of Kolb (1984). For Kolb, effective learning occurs when a concrete experience is of sufficient importance that it leads an individual to reflect on what occurred. This reflection leads to analysis and the formation of a strategy for taking action. Actions taken lead to success or failure thereby forming the basis for seeking out new experiences where the cycle is then repeated.

¹⁰ The appeal of stories might stem from the belief that human beings do not naturally reason deductively (Schank, 1990); they are more entertaining and believable (Neuhauser, 1993); or are a more efficient way of dealing with complexity (Yearwood and Stranieri, 2007). Recently, the power of storytelling in an online environment and it was discovered that it led to significantly greater levels of attention, relevance, confidence, satisfaction, and overall motivation when compared to the exact same course taught using a more standard instructional approach (Hirumi, et.al. 2012).

¹¹ This could occur in a manner similar to how story is currently being used to engage gamers in learning and skill development that is useful in both the real world and virtual game environment. See for example, (Yearwood and Stranieri, 2007; (Conle and Boone, 2008); and (Dickie, 2011).

¹² This doesn't detract from the fact that her plan fails and only through sheer luck does she defeat the witch. Life just as story and games for that matter often are subject to random elements that tip the balance toward victory or defeat.

¹³ If it is indeed true that art imitates life, then it should not come as a surprise that a connection can be made between the story of Dorothy and David Kolb's Experiential Learning Theory.

¹⁴ This is consistent with the literature that suggests that the presentation of content that is chunked up in small sections and designed to arouse the senses, has been shown to interfere with learning by priming inappropriate schemas (Harp & Mayer 1998).

¹⁵ Developing active approaches can be challenging when course curricula are structured around a textbook. Textbooks can serve as the starting point for active learning, but in many cases, do nothing more than enable passive study behavior. For example, many students believe that reading a textbook multiple times is an effective study strategy despite research that suggests the opposite is true (Callender & McDaniel, 2009). In contrast, the literature suggests that large improvements can be attained when students underline important passages in the reading, outline information or self-generate study questions (Paris et. al. 1986; Van Blerkom et. al. 2006).

¹⁶ Overcoming challenges as part of the learning process tends to increase long-term retention and transfer (Bjork & Bjork, 1992).

¹⁷ A more detailed discussion of the concept of the hero can be found in Allison and Goethals (2011).

¹⁸ Using a more general concept of hero as a vehicle for upward social comparison, Lockwood and Kunda (1997) develop evidence for the three driving factors in the positive impact of a hero: (1) perceived relevance, (2) assumed attainability, and (3) observed malleability of aptitude.

¹⁹ Students often need some guidance if they are to be successful in an open ended assignment (Kirschner et. al. 2006).

²⁰ As noted by Sara Worth (2008, p. 54): “When we begin to learn to reason, it is not entirely discursive or empirical. We learn through the structure of stories. That is, we learn to reason through the reasoning provided to us through hearing and telling stories. By engaging with narratives, we practice using our narrative reason. The structure found within narratives helps us to imagine more broadly than we are called to do with discursive thinking. ...The way we construct our narratives (fictional and nonfictional) is importantly tied to the way we understand, order, and construct our own reality and our own personal identity.”