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Heuristics, Nudge Theory and the Internet of Things

If the ultimate goal of media literacy is to make wise choices possible, we must ask ourselves, “How do people make decisions?” and “What role can media literacy education play in this decision-making process?”

American economists Richard Thaler and Cass Sustein have explored questions about decision-making in depth through their 2008 book “Nudge: Improving Decisions about Health, Wealth and Happiness,” which explored the ideas behind Nudge theory. Their work, in turn, was inspired by heuristics theory developed in the pioneering work of Israeli-American psychologists Daniel Kahneman and Amos Tversky, dating back to the 1970s. Kahneman was awarded the Nobel Prize for economics in 2002 for his work with Tversky (who died in 1996).

Although these theories were born in the field of behavioral economics, their applications are widely applicable, encompassing all aspects of leadership and behavior, for example, parenting, teaching, managing, marketing, service provision, leading and governing.

Furthermore, although heuristics (which Thaler and Sustein equate to “nudges”) are rooted in the idea that a variety of factors cause people to think and decide instinctively, rather than logically – nudge theory provides a way to not only understand how people think, make decisions and behave, but also to help people improve their thinking and decisions, manage change of all sorts, and identify and modify existing unhelpful influences on people. It is in this realm of proactive change management that media literacy education takes its place as part of a Nudge Theory toolkit.

It is important to also note how technology has advanced “nudge” methods, and how “nudge” methods encourage the design and use of new technologies. The Internet of Things, through which connected cars, interactive fridges and internet-enabled watches bring life-changing possibilities for “nudges.” At the same time, misuse, breaches of privacy and data all present problematic sides to how, when and to what purpose we are being “nudged.” Pew Research Center defines the Internet of Things as “a global, immersive, invisible, ambient networked computing environment built through the continued proliferation of smart sensors, cameras, software, databases, and massive data center in a world-spanning information fabric.” This global network of “Things” provides infinite numbers of “nudges” designed to assist us while monitoring us – for example, counting steps, alerting relatives to falls, alarms for meetings, flags for purchases, or turning on lights. As we change technology, technology changes us – and often irretrievably documents the process.

This issue of *Connections* explores Heuristics, Nudge Theory, the Internet of Things and Media Literacy. We also introduce our new web site, and invite you to join us on Facebook.

Research Highlights

Nudge Theory vs. Traditional Intervention

The word heuristics basically means “self-discovery,” and through its internal nature, heuristic thinking tends to be personal, emotional, subjective and instinctive. One way to think about heuristics is the notion of “rules of thumb,” which can be applied to many situations, sometimes saving time and money and other times, not. Whether beneficial or not, heuristics are part of every day life.

Nudge theory suggests that heuristics can be approached deliberately to encourage/enable helpful thinking and decisions, and that this is more effective in shifting individual and group behavior than by traditional threats, laws, policies, enforcement, etc. These latter ways of correcting behaviors have often failed or made matters worse; nudge theory offers a different and hopefully more successful way to help people shift their thinking and make decisions. The use of Nudge theory offers indirect encouragement and enablement rather than direct instruction or enforcement.

Some examples of Nudge theory at work are, for example, using a small basket at a grocery store rather than a wheeled basket or devising a food budget; using a small plate rather than counting calories; making trash bins readily accessible rather than posting warning signs saying “no littering” and announcing fines; playing a clean-up game with a child rather than threatening punishment if toys are not picked up. From a digital perspective, it might be counting steps each day using a Fitbit rather than joining a gym, or tallying clicks on webpages to determine interest levels and whether to follow up with a user rather than automatically responding with a sales call or offer; tallying likes rather than assuming interest.

Some ideas about how Nudge differs from traditional directed or enforced interventions are:

| Traditional | Nudge |
|--------------------------------|-----------------------------|
| Controlled information | Indirect, subtle |
| Legislation, rules, laws | Enable understanding |
| Direct, obvious | Enablement, facilitation |
| Judgmental | Non-judgmental |
| Enforcement, policing | Help, assistance |
| Spin, slant, emphasis | Translation, interpretation |
| Sell, negotiate, push, pull | Offer, wait, give space |
| Deadlines | Open-ended |
| Instruction, direction | Educate, Inform |
| Encouragement | Referencing peer activity |
| Justify, argue | Reference social norms |
| Non-compliance penalties | Self-discovery, heuristics |
| Enforced choices, imposed | Free choice |
| Imposed action | Option of zero action |
| Pressure | No pressure |
| Paternalistic, parent-to-child | Adult, equal |
| Talk down to | Discuss with |
| Dichotomous options | Unlimited options |
| Bias | Neutral |
| Selected Truth | Openness, nothing withheld |

Thaler and Sunstein defined Nudge theory as “an approach to understanding and changing people’s behavior by analyzing, improving, designing and offering free choices for people, so that their decisions are more likely to produce helpful outcomes for those people and society generally.”

While nudges or heuristics may be beneficial in making decisions, people are subject to fallacious thinking, as well, and some of these fallacies are the subject of research by Tversky and Kahneman and others. Media literacy education often focuses on exploring some of these fallacies and exposing them through group discussion of media messages and through the deconstruction process.

For example, Tversky and Kahneman studied a heuristic called “**anchoring and adjustment**” extensively, and found that while people routinely have a perceived reference point in relation to a question for which the answer is not known and is to be deducted – such as estimating the time it may require to complete a task in which they have no knowledge – they will start with an internal “anchor” reference and then adjust this amount until they feel comfortable with their guess for the unknown answer. However, such anchors, while comfortable to the user, are not typically a reliable way to arrive at an accurate measurement.

Other such often-fallible heuristics include:

Availability – the perception of the commonness or popularity or familiarity of something. Media influence these perceptions greatly and can unduly “prime” an audience. For example, people may believe that there are more homicides than suicides, while homicides are actually fewer than suicides.

Representativeness. This tendency is seen in the extension or extrapolation of a small sample to produce a wrong conclusion about the bigger picture, which fuels biases and stereotypes. Again, the media play a strong role in stereotyping and discrimination.

Optimism/Over-confidence or Under-estimation, complacency. People tend to over-estimate rewards and the ease of unfamiliar tasks, and under-estimate expenses/costs, timescales, complexity and difficulty, contributing to their ignoring, denying or under-estimating or justifying risk.

Loss Aversion. People tend to value something more when they possess it, than if they do not. This causes inertia and the tendency to default to inaction. Loss aversion avoids risk.

Status Quo Bias. Similarly, people are biased toward the status quo because they fear change, especially of an uncertain nature.

Framing. People assess options and make decisions due to framing, which is the presentation or orientation of information to alter its perceived meaning or nature. This can be a matter of

life or death: if a medical consultant focuses on death rate, people tend to put off treatment, whereas a focus on survival rates tends to increase agreement for treatment, without any alteration of the actual figures.

Temptation. People tend to want short-term more than long-term reward, whether the values are real or perceived, and they are attracted to choices which they perceive to be easy or that they think will make things easier for themselves. The values people place on different types of rewards depend on a person's circumstances and feelings at the time. Advertisers live a great deal in this realm.

Mindlessness is the tendency for people to form views and decisions carelessly. Mindlessness is related to framing and over-optimism.

Self-control Strategies. People are often aware that they have some "heuristic" weaknesses, which they might regard as bad habits or weaknesses. They address these by devising routines, strategies, and protections to protect themselves, and these self-control strategies become new heuristic tendencies.

Following the Herd addresses the "following the crowd" or "decision by committee" heuristics. Media play a role in this heuristic by helping build and maintain group beliefs.

Spotlight Effect. People tend to imagine that their individual actions and decisions are very noticeable to others; they are afraid of making a mistake. This heuristic is often exploited by the commercial world and sometimes successfully convinces audiences that certain behaviors are more normal than they really are, and that one is out of place if not conforming. For example, tobacco product placement in movies would suggest that more people smoke than is truly the case.

Priming. People can be helped to approach choices in a more prepared state, through visualizing what a change may look like, for example. Television shows, for example, have featured women in prominent leadership roles such as Secretary of State or as President, perhaps prompting audiences to accept such roles.

Stimulus Response Compatibility refers to whether the look and feel of the communication or signal (the stimulus) matches the message that we receive or infer (the response) from the communication. In honest communications, the appearance or feel of something (a sign, words) should help us understand how to respond or engage with it. So, for example, would a graffiti-covered gate be appropriate for a country club entrance? Or does the extensive, tiny small print in contracts discourage us from reading it before we sign on the dotted line?

Feedback. Feedback is a crucial element of helping people make decisions, and it is a sophisticated aspect of designing choices.

Other heuristics or nudges include such aspects as:

Limiting – using expiry dates, limited supplies, lost opportunity.

Positioning – designing proximity, prominence, visual engagement.

Sympathy – using the path of least resistance; engaging and responding is easier.

Sensory – employing sound, music, color, brightness, touch and texture, heat and cold, wetness, smell, touch.

Likeability – presenting trust, reputation, credibility.

Accessibility – insuring the efficiency or reach of a message; more accessibility tends to increase responsiveness.

Relevance – making messages personal and meaningful.

Mood – evoking positive attitudes and feelings.

Fear – thinking driven by risk or threat, and may be used in helpful ways, such as Stop signs or Slippery When Wet signs

Facilitation – helping people to understand and decide.

Today, “nudges” or heuristics are being automated through the Internet of Things. Building on increased machine-to-machine communication, the Internet of Things is mobile, virtual and instantaneous. It’s built on cloud computing and data-gathering sensors that measure and evaluate. And when the massive amounts of data that sensors collect can be leveraged and used in new and amplified ways, opportunity knocks once again for humans to extend their own capacity.

Heuristics contribute to the natural or human thinking that is often irrational, instinctive, emotional, subjective and unhelpful – but more typical of human beings. Kahneman-Tversky call this “Automatic/System One thinking.”

“Reflective (System Two) thinking or Econ thinking” is logical, rational, objective and unemotional – and of course, generally more uncommon; a scientific approach.

This type of “thinking” is more often descriptive of the type of data-gathering that sensors and machines can do. Hence the importance of the Internet of Things to come.

Our challenge in media literacy education is to recognize, honor and use the human thought process by applying Econ thinking to media messages, to enable wise choices that we understand as human beings – a challenge indeed.

Note: for a more detailed overview about heuristics and Nudge Theory, check <http://www.businessballs.com/nudge-theory.htm>



Introducing CML's New Web Site

We are pleased to announce that our newly redesigned web site is up and running. You will find more than 1000 pages of media literacy information including current research, historical archives, curricula, and teaching activities at your fingertips. It's now easier than ever to search and navigate the site. Take a look!

www.medialit.org



Center for Media Literacy on Facebook

The community is growing. Join us.

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CONSORTIUM
for **MEDIA LITERACY**

Uniting for Development

About Us...

The Consortium for Media Literacy addresses the role of global media through the advocacy, research and design of media literacy education for youth, educators and parents.

The Consortium focuses on K-12 grade youth and their parents and communities. The research efforts include nutrition and health education, body image/sexuality, safety and responsibility in media by consumers and creators of products. The Consortium is building a body of research, interventions and communications that demonstrate scientifically that media literacy is an effective intervention strategy in addressing critical issues for youth.

<http://consortiumformedia literacy.org>

Resources for Media Literacy

Applying Heuristics to Media Literacy Education

The characteristics of a Nudge approach are highly descriptive of approaches to media literacy education since the emphasis in media literacy pedagogy is to encourage openness, inquiry, and freedom of mind and expression. The education system at large is slowly moving in this direction, as well. Gone are the command-and-control days of managing or teaching by decree. Today, businesses are run largely by cross-functional teams of peers and populated by people who show little tolerance for unquestioned authority, and educators are adjusting to the demands for team approaches and for adapting to the art of persuasion rather than the threat of punishment. Electronic communication and globalization have further eroded the traditional hierarchy, as ideas and people flow more freely than ever around organizations and countries.

Heuristics are an integral part of media literacy education, and it is instructive to examine why and how. Much of the work of media literacy education is to make the unconscious conscious, the opaque transparent, and the undecided decided. As such, media literacy education is a conscious intervention strategy that provides process skills that, with practice over time, become internalized and used unconsciously. In other words, **media literacy education uses heuristics to address heuristics.**

Let's see how...

The **Mindlessness heuristic** is the tendency for people to form views and decisions carelessly. Mindlessness is related to framing and over-optimism; people passively accept framing of issues and ideas, people, places and things that are presented to them through media and over-optimistically assume that these framings are benign or at least neutral; they do not see that media affects them, although they may believe that media affects others. Media literacy challenges this passivity.

Through media literacy education, the hope is to turn mindlessness to mindfulness through increased awareness, understanding, and discussion. Citizens need to be equipped with a reliable, easy and readily-accessible filtering system to use anywhere, anytime in both deconstructing and constructing media messages. This filtering system is an example of a **Self-control Strategy**, a heuristic comprised of habits and routines to counter weaknesses (with the weakness being the **Mindlessness** heuristic).

The habits of mind that media literacy educators encourage (**Facilitation**) in their students is using a basic framework to critically analyze media, so that conscious decisions about media messages can be made (**Sympathy**). These habits of mind are embodied in a process of inquiry that – with practice in applying them to various media messages in various media formats and mediums (**Sensory**) – becomes automatic and internalized, and thus a new heuristic.

So for example, to give oneself time to think before speaking or acting, some people learn to

count to ten as a matter of course. In navigating media messages, media literacy educators encourage students to learn Five Key Questions for Deconstruction and Five Key Questions for Construction. These Five Key Questions are based on the Core Concepts of Media Literacy, which are grounded in long-standing and respected academic work. Through repeatedly applying the Concepts and Key Questions, students gain experience in determining **Framing** and **Stimulus Response Compatibility**, and in learning what **Representativeness** and **Temptation** are, or whether messages are factual or credible or useful to them or not (**Optimism/Overconfidence or Under-Estimation/Complacency**), or whether others really care (**Spotlight Effect**).

CML's basic analytic framework is called Questions/TIPS (Q/TIPS), and it serves as a standard that is consistent and replicable; curricula using this foundation is also flexible, measurable and scalable:

**CML's FIVE CORE CONCEPTS AND KEY QUESTIONS
FRAMEWORK FOR CONSUMERS AND PRODUCERS**

| CML's Questions/TIPS (Q/TIPS) | | | | |
|--------------------------------------|--|---|--|---|
| # | Key Words and Image | Deconstruction: CML's 5 Key Questions (Consumers) | CML's 5 Core Concepts | Construction: CML's 5 Key Questions (Producer) |
| 1 | Authorship  "This is not an apple" Magritte | Who created this message? | All media messages are constructed. | What am I authoring ? |
| 2 | Format  | What creative techniques are used to attract my attention? | Media messages are constructed using a creative language with its own rules. | Does my message reflect understanding in format , creativity and technology? |
| 3 | Audience  | How might different people understand this message differently? | Different people experience the same media message differently. | Is my message engaging and compelling for my target audience ? |
| 4 | Content  | What values, lifestyles and points of view are represented in or omitted from this message? | Media have embedded values and points of view. | Have I clearly and consistently framed values, lifestyles and points of view in my content ? |
| 5 | Purpose  | Why is this message being sent? | Most media messages are organized to gain profit and/or power. | Have I communicated my purpose effectively? |

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In learning to identify the concepts at work and discuss applications of the framework, students have an opportunity (**Availability**) to learn to question and to gain **Feedback** and see the **Relevance** of the media to their every-day lives and that of their family and peers. In turn, these discussions demonstrate how the framework can be applied and also, the flexibility of using it anywhere, anytime; students develop a common vocabulary and way of thinking that encourages communication, regardless of the subject being addressed (**Accessibility**). The earlier the age at which this foundation is laid, the better, since these habits of mind can become as automatic as learning to tie shoelaces or swimming – they are process skills that last a lifetime. Losing the opportunity to become media literate early in life is **Limiting**.

But analysis is not enough. The Empowerment Spiral of Awareness, Analysis, Reflection and Action is an example of a decision-making tool that elucidates basic (and unending) steps that help individuals make choices – and whether one decides to act or not, one sees how a choice is made (**Priming**).

Assuming that media literacy education lends itself to a scientific approach, then it must be consistent, replicable, measurable and scalable and withstand the test of time. Media literacy is increasingly visible and addressed globally (**Positioning**), although there is much resistance to changing the education system (**Fear, Loss Aversion, Status Quo Bias**). Although much research remains to be done on media literacy, early results of studies are positive and promising (**Likeability, Mood**).

MediaLit Moments

Heuristics: How Our Brains Can Be Tricked

In honest communications, the appearance or feel of something (a sign, words or anything designed for us to engage with or respond to) should help us understand how to respond or engage with it. A good example of this effect is an optical illusion, where our brain “sees” something that is not there.

Show your students two slides and ask them what they see

AHA! I often see what I WANT to see! But this may not be what someone else WANTS me to see.

Grade Level: 3-6

Key Question #3: How might different people understand this message differently?

Core Concept #3: Different people experience the same media message differently.

Materials: Two Powerpoint slides.

Activity: These optical illusions show how our brain can easily trick us.

Show these slides:

PARIS
IN THE
THE SPRING

(Most people seeing this for the first time say, Paris in the Spring. But the word “the” appears twice.)

Then, Ask students to read all the words in the box below and count how many times the letter f or F appears:

How many ‘f’s?
FINE POINT
It is easy to miss the
Finer
Points in life. Folk are
Frequently guilty of
falling
into this trap.

(The letter f appears eight times in the box. People commonly count seven, by failing to see the last one.)

For more information on Heuristics and Nudge Theory: <http://www.businessballs.com/nudge-theory.htm>

The Five Core Concepts and Five Key Questions of media literacy were developed as part of the Center for Media Literacy’s MediaLit Kit™ and Questions/TIPS (Q/TIPS)™ framework. Used with permission, ©2002-2015.