[MSB637] Week3 Thought Paper **20223484 이연수**

1. Etkin, Jordan (2016), "The Hidden Cost of Personal Quantification," Journal of Consumer Research, 42(6), 967–984.

Main hypothesis: Measurement decreases enjoyment, which decreases the continued engagement and well-being of the subject. Reduction in enjoyment occurs because measurement makes the activity feel more like work.

Overall, this article provides a novel insight that measurement can be detrimental. This is particularly important in that measurement is perceived to be positive to most people, and is being implemented everywhere in modern society. This article is also critical in that it showed how mere addition of measurement can harm intrinsic motivation. It is interesting that intrinsic motivation can be diminished so easily by such a small intervention.

However, there are some points that I would like to raise. First, in experiment 1, creativity evaluation indicates that the measurement group drew less creatively and used less number of colors. On the other hand, the follow-up study on performance feedback demonstrates that measurement had no impact on how well participants thought they performed. These two findings seem somewhat contradictory. Is it really the case that people perform less creatively with measurement but do not realize it themselves? I think this is an interesting point and further research regarding the impact of measurement on creativity and self-evaluation could be made. Second, in experiment 5, measurement had a similar effect on enjoyment in load/no-load conditions. This seems to conflict with the claim that measurement's effect is driven by increased attention to the output. If the latter claim were true, the negative impact of measurement on enjoyment should decrease under cognitive load since there are fewer attentional resources to spare to output. As far as I understand, this is why there was a significant interaction effect in the output analysis of experiment 5. Why does it not apply to enjoyment?

In this regard, I also doubt the factorial design in experiment 5 aiming to cross out the mere distraction explanation. While cognitive load reduces attention to the enjoyable activity directly, it also decreases attention to output directly. I do not understand how the result of experiment 5 eliminates the mere distraction explanation. Moreover, I wonder if a 2x2 factorial design is suitable for this purpose. To my understanding, the logic behind this experimental design is that if mere distraction were the reason behind the negative impact of measurement on enjoyment, then cognitive load (which also distracts) should also decrease enjoyment. I believe it is more suitable to directly compare control/measurement/cognitive load conditions to prove this point. I wonder what is rational and benefit for choosing the factorial design.

In addition, I have some questions regarding the optional measurement condition in experiment 3. Among the optional measurement group, were there any differences between those who (voluntarily) got measured and those who did not? If so, did the differences reflect the main hypothesis of this article? In other words, does voluntary participation have a moderating effect on the impact of measurement on enjoyment? If it does, then there might be another mediator for measurement-enjoyment relationship related to the property of those who volunteer (or not) for measurement. I believe this part of the study could use some further investigation.

Lastly, there is a relevant research question that came to my mind while reading this article. This article shows the detrimental impact of quantitative measurement on enjoyment. What if the feedback given to subjects were qualitative? For instance, one of the coloring apps that I use provides a short video clip that fast-forwards the entire process of my coloring. It was one of the qualities that I found attractive about this app in the first place (why I got this app). However, while I was reading this article, it got to me that recently I have been focusing on the video more than I enjoy the coloring. I wonder if providing qualitative feedback as this coloring app can also have a similar detrimental effect.

2. Melumad, Shiri, Jeffrey Inman, and Michel Pham (2019), "Selectively Emotional: How Smartphone Use Change User-Generated Content," Journal of Marketing Research, 56(2), 259-275.

Main hypothesis: Content generated on a smartphone (vs. PC) is more emotional and less specific. This is due to the greater brevity of the content generated on a smartphone.

This article provides an interesting finding that characteristics of UGC can differ depending on the type of device. The authors thoroughly validate the proposed process by manipulating the device (smartphone vs. PC), brevity, and valence separately in three experiments and evince the generalizability by conducting two field studies in different domains. It also eliminates other plausible explanations – temporal proximity and self-selection. I find it surprising that the result is robust when controlling the temporal proximity and that PC users use more present tense than mobile users.

Regarding self-selection, this article compares the reviews written by those who have both PC and mobile reviews. While this approach accounts for individual differences, it does not consider that each individual may have different motivations for choosing a certain kind of device. For instance, people may prefer to write on a PC when they have many things to say but prefer to write on a smartphone otherwise. Having many things to say usually means that it entails details, leading to higher specificity. Thus, I think there is a chance that this process might be reversed in some real cases.

Using the proportion of emotional words as a dependent variable also raised some questions. Considering the average number of words and the proportion of emotional words, it is likely that long reviews have more emotional words than short reviews in terms of absolute number. Is the ratio of emotional words more critical than the absolute number when judging how emotional the writing is? For instance, say we prepare a short review. In condition A, we show participants this short version. In condition B, we add non-emotional sentences in the review (e.g. information, description) to make a long version with the same number of emotional words. In this case, would people in condition A perceive the writing as more emotional compared to condition B?

Moreover, this study treats valence as either positive or negative. Further research could also take into account a level of emotion. For example, "I didn't enjoy the atmosphere," and "The atmosphere was disgusting," both have one negative emotional word. However, the latter exhibits much stronger emotion. Do smartphone reviews show more extreme emotion compared to PC reviews? Among the proportion of emotional words and overall extremity of emotion, which one is a better predictor for perceived sentimentality? This paper got me interested in the concept of valence - how to measure emotion, how emotion is captured and expressed. I tried to search for it but the concept itself was hard to understand :(

Lastly, I want to add some words on how to develop further studies. As more people get used to doing everything on their smartphones, predictably more UGC will be created by smartphones. As proposed in this article, this may shift the properties of UGC. How can firms apply the findings in this study? What more research could be conducted to leverage this finding? From a business perspective, research on identifying an effective strategy on how to manage consumer review might be valuable. To illustrate, one could study which is more effective among increasing reviews with positive emotion or reducing negative reviews, in light of the increasing proportion of emotional reviews. One could also conduct research to find out other changes the mobile environment can bring. For instance, it is much easier to promptly upload photos using a smartphone than a PC. Does this change the proportion of picture usage on UGC? It may also change how people gain information from UGC. Consumers may focus more on pictures and less on texts as more pictures are included in smartphone reviews since they think pictures are more objective than texts. Maybe they first look at photo reviews to get an overall impression then read some text reviews selectively (e.g. read negative reviews only) to resolve the concerns or doubts that they had in mind. I believe that numerous research questions need to be addressed in this domain.

3. Granulo, Armin, Christoph Fuchs, and Stefano Puntoni (2019), "Psychological Reactions to Human versus Robotic Job Replacement," Nature Human Behaviour, 3 1062-1069.

Main hypothesis: From an observer perspective, people prefer employees being replaced by humans than by robots due to economic concerns. From an employee perspective, people prefer to be replaced by robots than by humans because less engagement in social comparison leads to a lower threat to self-worth.

This article discovers that people go through different psychological processes after job replacement by humans vs. robots. With the rapid development of technology, more task/job replacement by technology will continue to increase. Moreover, considering that more people will undergo retraining at least once in their life cycle due to longer life expectancy, the findings from this study have significant implications.

However, I believe more caution should be taken when discussing the implications. The authors suggest that for workers who lost their job to automation, restoring self-worth should be less of a priority, and unemployed support programs should focus more on upgrading skills. I argue that this suggestion over-interprets the results of this study. It should be noted that self-threat and economic concerns are highly correlated. The result of study 6 shows that although robot replacement does not have a significant impact on self-threat, economic concerns do. This implies that among the unemployed who attribute their job loss to automation, those who suffer the most from economic concerns have the highest probability of experiencing intense self-threat. More research should be conducted to distinguish high/low self-threat individuals among the robotic replacement group.

Next, there was a part that was a bit confusing to me. The mediation analysis in study 5 establishes that self-threat mediates the impact of engagement in social comparison to the preference for human versus robotic replacement. So far, most of the articles that I have read used the following approach. They first show the relationship between the independent variable and the dependent variable. Afterward, to show why the independent variable has such an impact on the dependent variable, they come up with a mediator, with which they conduct a mediation analysis. In contrast, this article first clarifies the relationship between self-threat (mediator) and preference for human/robotic replacement (independent variable) and then introduces social comparison (dependent variable) to explain why people are more threatened by other humans than robots. I understand that mediation analysis is performed in the right direction since it makes more sense that high engagement in social comparison leads to more self-threat compared to more self-threat resulting in more social comparison. Still, I do wonder if this kind of flow (confirming the relationship between the mediator and independent variable before mediation analysis) is common in practice.

Lastly, here are some of the remaining relevant thoughts.

1. Could there be other moderating factors that influence people's preference for robotic/human replacement? For instance, artists may prefer to be replaced by humans than robots since they believe that their job is only for humans. The effect of economic concerns might be greater than the effect of self-threat in occupations where the risk of robotic replacement is perceived to be small.
2. I wonder if the extent to which individuals believe in technology also affects the main finding of the study. While some people believe that technology is capable of doing almost all the things that humans can, some take more of a conservative side and claim that technology cannot rule the world. It seems that the latter will struggle more with robotic replacement, compared to the former.
3. It is evident from the mediation analysis that engagement in social comparison yields self-threat. What moderates this relationship? How can one engage less in social comparison with other people? If engagement in social comparison is inevitable, how can one protect oneself from self-threat?

4. Longoni, Chiara, Andrea Bonezzi, and Carey Morewedge (2019), "Resistance to Medical Artificial Intelligence," Journal of Consumer Research, 46(4), 629-650.

Main hypothesis: Patients prefer healthcare provided by a human compared to AI. This phenomenon is due to the mismatch between a belief about self-uniqueness and a belief that machines only work in standardized ways.

This article significantly contributes to the adoption of medical AI by identifying that consumers' perception of self-uniqueness leads to reluctance toward AI healthcare providers. The idea that self-uniqueness mediates people's resistance to medical AI is novel and interesting. Moreover, this article provides practical guidelines on what to do (or not to do) when developing an AI healthcare model. Healthcare is one of the fields that can benefit the most from AI technology. AI is capable of processing massive amounts of data that are created every second in the hospital. AI can also make decisions out of collected data in such a short time and yet, never get tired. However, AI adoption is relatively slow in the medical sector due to low receptivity and complicated ethical, legal issues. I believe that the findings of this paper will help medical AI to overcome consumers' aversion.

For instance, there are attempts to develop an AI doctor that speaks just like a human (e.g. intonation, accent) to make patients feel comfortable with AI healthcare. In study 6, mediation analysis shows that ascriptions of human nature and human uniqueness are not the underlying reason for consumers' preference of human healthcare providers over AI. This implies that making AI that resembles humans may not have the desired effect of reducing the resistance. The application of explainable AI in the medical domain can also take advantage of the findings. Explainable AI has recently attracted attention as a method to solve the black box problem and increase model reliability. The finding suggests that explainable AI that focuses on the uniqueness of individuals is more likely to be welcomed by consumers. For example, one could develop an AI that compares the patient to people with similar symptoms, draws similar/unique points from the comparison, and then illustrate how those points led to the final decision. Explicitly visualizing the personalization process can be the key to success in medical explainable AI.

In regards to explainable AI, I wonder if trustworthiness also mediates consumers' dislike towards AI healthcare providers. Do people trust a human doctor more than AI even when given that they have similar performance? If so, why? The expectation for smooth interaction may also serve as a mediator. When treated by human doctors, patients can ask further questions and get additional advice about their health. On the other hand, consumers might not expect such interactive communication with AI healthcare providers. They might suspect AI's capability of answering the questions asked on the spot. In addition, consumers may believe that interaction with AI will be more frustrating compared to humans due to their past experiences (e.g. answering machine, Siri). In addition, perceived efforts could play a mediating role (like what we discussed in the previous consumer behavior class). In addition, perceived efforts could play a mediating role. With human doctors, consumers might feel like someone is actually putting in an effort for them. They can directly see that someone is doing work to get them what they paid for. Conversely, with automated healthcare providers, consumers might feel like they are overpaying when all the job is done by a machine. They might even feel devalued. Further investigation into these factors could be worthwhile.

Here are other relevant thoughts First, I wonder why the authors set the reference point as $50 in study 2. In both human/AI cases, participants indicated a lower price than $50 on average. This seems contradictory to the main finding of the article. If people prefer to pay more to humans than automated providers, then shouldn't they pay more than $50 when told that medical AI costs $50? I suggest that this contradiction may be due to the reference point being set too high. Second, as far as I know, conjoint analysis can be used to compare the importance of the features quantitatively. Can we say that 1~2% of accuracy trades-off for human/robot provider exchange? Third, in study 6, mediation analysis was performed simultaneously with all the mediators. I wonder if different results would have been obtained if the model was run separately for each mediator. Fourth, I learned the Johnson-Neyman floodlight technique from this article, and I think it is a good way to effectively visualize the effect of the moderator (as in Figure4).

Lastly, I leave an idea for future research. I understand that people disfavor automated healthcare providers (vs. humans). I wonder what impact medical AI would have on the hospital as a whole. To

illustrate, let's say there are two hospitals A and B. Hospital A has two AI healthcare providers and B doesn't. Meanwhile, B has two more human doctors than A (so that the total number of healthcare providers is the same). Which hospital would people favor among A and B? Hospital A has a winning point in that it provides more variety options and that it can give the impression that they keep updated with stats-of arts technology. On the other hand, people might just prefer humans over AI and favor hospital B. For the adoption of medical AI, I believe this is as important as the direct comparison of consumers' receptivity to human vs. automated healthcare providers