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# COVID-DRIVEN FRUSTRATIONS AND FULFILLMENTS WITH ONLINE LEARNING: DO MALES AND FEMALES DIFFER?

Asli Yagmur Akbulut  
*Grand Valley State University, akbuluta@gvsu.edu*

Grant Clary  
*Tennessee Tech University, gclary@tntech.edu*

Craig Van Slyke  
*Louisiana Tech University, vanslyke@latech.edu*

Geoffrey Dick  
*St. John's University, gfdick@aol.com*

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## COVID-DRIVEN FRUSTRATIONS AND FULFILLMENTS WITH ONLINE LEARNING: DO MALES AND FEMALES DIFFER?

Asli Yagmur Akbulut  
Seidman College of Business  
Grand Valley State University  
akbuluta@gvsu.edu

Grant Clary  
College of Business  
Tennessee Tech University  
gclary@tntech.edu

Craig Van Slyke  
College of Business  
Louisiana Tech University  
vanslyke@latech.edu

Geoffrey Dick  
Collins College of Professional Studies  
St. John's University  
gfdick@aol.com

### Abstract:

This paper reports the results of a study to determine whether the emotional impact of online education during the pandemic affected male and female students differently. We see these results as an important contribution to the redesign of courses either for online classes generally or for more urgent applications should a similar event occur. In general, we found that females were more likely to be prone to detrimental emotions than males – stress, negative feelings about the online learning experience, and the need to vent their frustrations. Males on the other hand were more positive about the online learning experience and less likely to vent.

**Keywords:** Covid-19, Distance Education, Online Education, Emotions, Gender

## I. INTRODUCTION

As the Covid-19 pandemic struck, it struck quickly, giving university administrations and faculty little time to adjust and to set up online classes in the way that most would have liked. As there was little information about the disease and how long it would last, stop-gap approaches became the norm with most schools simply closing, sending students home, and instructing academics to do the best they could by using the technology available in imparting knowledge in a very different (for most) social setting. (It is acknowledged that many schools put considerable effort, via centers for teaching and learning, into helping faculty to use the technology and providing best practices in instructional design.) Nevertheless, even two years later, many higher-education institutions have still not fully re-opened. For many students, the absence of campus/classroom attendance and the resulting social isolation forced upon them, was extremely frustrating and disappointing – most certainly not the university experience they had hoped for – and signed up for.

Two comments made to one of the authors exemplify this frustration:

“Covid has ruined my university experience”  
(a graduating senior coming back to a face-to-face class after 18 months online)

“I hate this – I was all set to live in New York, but I am back in my childhood bedroom”  
(a freshman who had to stay at home in rural Maryland, instead of attending school in New York)

At a high level, gender has not played a major causal role in online education (we use the terms online and distance education interchangeably in this paper) over the years. Several studies have reported no effect – Amro et al., 2015; Harvey et al., 2017; Rizvi, 2019 and Tang et al., 2021 are examples. However other studies have indicated that the gender effect may more nuanced. Huffman et al., [2013] found that masculinity affected technological self-efficacy, Ching and Hsu

[2015] reported using audio/visual discussion was likely to be more effective and perceived more positively by female students and an earlier study [Rovai and Baker, 2005] indicated females communicated at different levels and perceived both the community and learning differently to males. These and other contributions in the literature will be examined in more detail in subsequent sections of this paper.

Against the background then of enforced social isolation, the absence of a “campus experience” and (sadly) the likelihood that a similar event may occur, this research aims to assess the emotional impact on students to determine whether males and females have suffered (or not) emotionally or stressfully as they got on with their studies. The role of social isolation in exacerbating emotional impact and stress will be examined along with its effect on students’ desire to discontinue their studies. The research being undertaken aims to provide guidance to faculty and university administrations as to whether or not different approaches to the online classroom may be required as they try to maintain retention and graduation statistical objectives. Additionally, it is intended to look at this issue longitudinally and collect another set of data further along in the pandemic.

We hope that this stream of research will go some way towards answering the call made by Sarker et al. [2019] for IS research to be enriched by further studies concentrating on the sociotechnical perspective. This paper reports on the first part of this research – identifying differences in outcomes based on gender.

## II. BACKGROUND AND THEORETICAL DEVELOPMENT

Our research uses a synthesis of elements of the contextual model of stress and coping process [Zwicker and DeLongis, 2010] and the literature on gender-based differences in stress and coping [e.g., Helgeson, 2011; Iwasaki, et al., 2004; Zwicker and DeLongis, 2010]. The contextual model of stress contends that the interaction of situational and personal characteristics affects every aspect of the stress process. The stress process begins with some event (for example the transition to online learning during the pandemic), which triggers an appraisal of whether the event holds implications for well-being. When this appraisal indicates an effect on well-being, coping responses are triggered. These coping responses, in turn, affect outcomes. Individual differences with respect to gender, personality, and other factors affect each of these elements. This model serves as the overarching framework for our study.

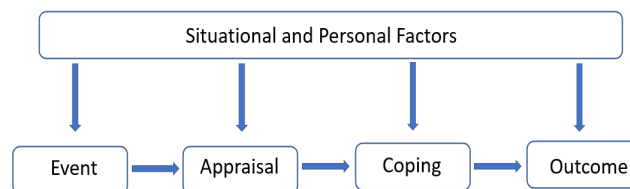


Figure 1: Research Framework.

In this paper, we are interested in studying gender differences in emotional responses to distance learning. We are interested in two types of emotional responses. The first considers the outcomes of the stress appraisal process. Broadly speaking, this appraisal process considers whether an event is seen as a challenge or a threat. Challenge appraisals indicate that the individual considers the event as an opportunity for growth while threat appraisals indicate that the event is detrimental to one’s well-being. Generally, challenge appraisals are characterized by eustress responses, which is beneficial stress, and threat appraisals bring about feelings of distress, which is a negative psychological response to stressful events.

The second type of emotional response concerns coping responses. One view of stress coping contends that there are two broad categories of coping strategies. Problem-focused strategies are directed at changing the underlying conditions that are bringing about the stress. In contrast, emotion-focused strategies involve making mental changes, but they do not bring about

environmental changes. In this paper, we are interested in emotion-focused coping as one type of emotional response to distance learning. In the particular event under examination here, the transition to online learning during the pandemic, students had very little opportunity to modify the conditions under which they found themselves.

The literature on gender differences in stress and coping indicates that there are clear differences in how women and men experience and respond to stress [Helgeson, 2011; Iwasaki, et al., 2004; Prowse, et al., 2021; Zwicker and DeLongis, 2010]. Women seem to be more sensitive to stressors in their environments. Further, women experience these stressors more intensely than men. Because of this, women engage in more coping responses to stress [Zwicker and DeLongis, 2010].

Research also indicates that women tend to turn to their social networks for support during times of stress [Greenglass 2002; Taylor et al., 2000; Zwicker and DeLongis, 2010], seeking emotional support, advice, and practical assistance in addressing their stressful situations [Greenglass, 2002]. Unfortunately, when COVID restrictions were in place, seeking social support became more difficult. As a result, women reported greater increases in loneliness [Lee et al., 2020] and were more likely to suffer mental health consequences due to changes in their social networks [Elmer et al., 2020].

Women and men tend to experience and respond to stressful events in different ways [Zwicker and DeLongis, 2010]. In general, women have a tendency towards what some have called a “tend and befriend” approach, as opposed to men who tend more towards a “flight or fight” response. Put differently, women tend to cope with stress through social means. Men, however, are socialized to believe that seeking emotional support is “unmanly” and therefore tend to eschew social coping responses for those that draw on internal resources [Zwicker and DeLongis, 2010]. For women, the effects of increased stress are mitigated, in part, by their ability to acquire social support.

The transition to online learning during COVID was especially difficult for women. Women reported a greater degree of negative impacts than men. These included increased stress and social isolation and reduced mental health. The matter of social isolation is especially interesting and may offer a partial explanation for gender-based differences in responses to stress related to the transition to distance learning brought on by COVID [Prowse, et al., 2021].

Women, in general, are more inclined than men to provide and seek social support, especially when facing difficult circumstances. Emotional support is a more effective buffer for the effects of stressful events for women than for men. One possible reason for this is that women are more socialized to be comfortable with discussions about intimate thoughts and emotions. Further, across a wide range of stressors, women are more likely than men to seek out social support in an effort to cope with the stress [Greenglass, 2002; Taylor et al., 2000; Zwicker and DeLongis, 2010]. Because of this, the effects of social isolation brought on by the pandemic are especially harmful to women’s efforts to deal with stress. Social isolation means that one’s social networks are less accessible, as is the social support those networks can provide. Therefore, women, who seek social support more than men, are disproportionately likely to feel distress from distance learning.

In addition, research indicates that women are more likely to believe that they lack control when facing work-related stressors [Zwicker and DeLongis, 2010]. This offers a possible explanation for the tendency for women to engage in more emotion-focused coping than men. Problem-focused coping involves taking control of one’s environment in order to make changes that will reduce feelings of distress. When this avenue seems closed off, emotion-focused coping is more likely.

The greater emphasis on problem-focused coping may lead men to find the stress from distance learning to provide greater opportunities for growth to a greater extent than women. This should make men more likely to have eustress responses to the stressors present in distance learning. It is important to keep in mind that the distress and eustress are affected by beliefs about control, not actual control. So, even if women and men objectively have the same degree of control, because women typically believe that they have less control when facing stressors, they are more

likely to experience distress and less likely to experience eustress, as stated in the hypotheses below.

H1: Women will experience distance learning distress to a greater extent than men.

H2: Men will experience distance learning eustress to a greater extent than women.

As noted earlier, women are more likely to pursue emotion-focused coping than men. As a result, we generally expect women to experience more emotional responses to distance learning stressors. However, because eustress responses are associated with positive emotions [Simmons and Nelson, 2007], we expect men to experience positive emotions at a higher rate than women. In contrast, we expect women to feel more negative emotions. Not only are women more likely to engage in emotion-focused coping, but they will feel the effects of social isolation more acutely than men. This is especially troubling during times of stress, as was the case during the COVID-19 pandemic. Because we expect women to experience more negative emotions about distance learning, we also expect them to engage in more venting. Venting is an emotion-focused coping response in which an individual not only feels negative emotions but also expresses those emotions to others. Following the above logic, we offer the following hypotheses.

H3: Men will feel positive emotions regarding distance learning to a greater extent than women.

H4: Women will feel negative emotions regarding distance learning to a greater extent than men.

H5: Women will engage in venting more than men.

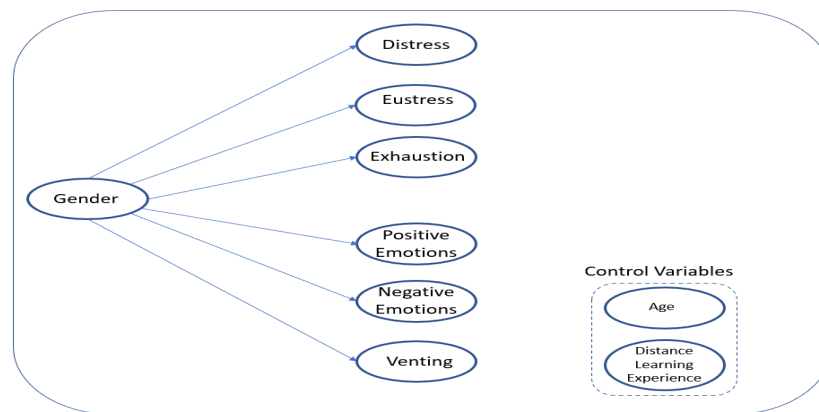


Figure 2: Research Model

Our research model is represented above. We used data collected via a survey to test these hypotheses. The survey and data are discussed in the following section.

### III. SURVEY AND DATA

We developed and administered a survey that comprised previously validated scales to adult higher education students who had taken at least one course online. We limited our data to students who resided in the United States at the time we conducted the study. Scale items are provided in Table 1. To capture the underlying theoretical dimensions comprehensively, multiple indicators were used to measure each construct, using Likert-type scales.

Our final sample contained 525 responses. 90 percent of the participants classified themselves as full-time students, 60% of the respondents identified as female (no students identified as non-binary), and 86.5% were undergraduate students. The mean age was 22.

Table 1: Scale Items and Sources

Scale	Item	Source
Distress	I generally view myself as being stressed while taking classes online.	O'Sullivan [2011] (adapted)
	I rarely experience academic stress when taking classes online.*	
	My friends see me as someone who is often stressed about taking classes online.	
	While taking classes online, I experience periods of academic stress at least once a week.	
	My family sees me as someone who is often stressed about taking classes online.	
	I feel as though I often experience more stress about online classes than my peers.	
	I hardly ever think about how stressed I am.*	
Eustress	How often do you feel that stress positively contributes to your ability to handle problems related to taking classes online?	O'Sullivan [2011] (adapted)
	In general, when taking classes online, how often do you feel motivated by your stress?	
	When faced with stress from online classes, how often do you find that the pressure makes you more productive?	
	How often do you feel that you perform better on an assignment when under academic pressure?	
Exhaustion	I feel drained from my online class activities.	Suh and Lee [2017], adapted from Ayyagari et al. [2011]
	I feel tired from my online class activities.	
	Taking classes online is a strain for me.	
	I feel burned out from my online class activities.	
Negative emotions	How frequently do you feel each of the following emotions while doing class work from home?	Beaudry and Pinsonneault [2010]
	Anxiety	
	Fear	
	Worry	
	Anger	
	Frustration	
Positive emotions	How frequently do you feel each of the following emotions while doing class work from home?	Beaudry and Pinsonneault [2010]
	Anticipation	
	Playful	
	Happiness	
	Enjoyment	
Venting	When perceiving an online class problem, I get upset and let my emotions out	Weinert et al. [2019]
	I let my feelings out when perceiving an online class problem	
	When perceiving an online class problem, I feel a lot of emotional distress, and I find myself expressing those feelings a lot	

\* -- Reverse-worded item

## IV. RESULTS

### OVERVIEW

We used partial least squares (PLS) as implemented in SmartPLS 3.3.9 [Ringle et al., 2015] to analyze our data in order to test our hypotheses. PLS simultaneously produces a measurement model and a structural model. These are discussed below.

### MEASUREMENT MODEL

Before testing our hypothesis through an analysis of a structural model, we examined the measurement model to ensure that our measures are adequately reliable and valid. Reliability and convergent validity data are shown in Table 2. Reliability and convergent validity were assessed by examining Cronbach's alpha and composite reliability. Generally, values above 0.70 are considered evidence of adequate reliability. All of our scales met these heuristics. Convergent validity was assessed by examining the average variance explained (AVE), which exceeded 0.50 for all scales, indicating acceptable convergent validity. Also, all scales had significant loadings on their intended scales ( $p < 0.001$ ), further indicating convergent validity.

Table 2: Reliability and Convergent Validity Statistics

Scale	Alpha	Composite reliability	AVE
Distress	0.865	0.888	0.533
Eustress	0.745	0.809	0.528
Exhaustion	0.928	0.948	0.821
Negative emotions	0.893	0.915	0.654
Positive emotions	0.890	0.918	0.915
Venting	0.921	0.950	0.864

Discriminant validity was assessed using the Fornier-Larcker criterion [Fornell and Larcker, 1981] as shown in Table 3, which shows inter-scale correlations on the off-diagonal cells and the square root of the AVE in bold on the diagonal elements. In all cases the square root of the AVE is substantially greater than the highest inter-scale correlation, indicating acceptable discriminant validity.

Table 3: Discriminant Validity Statistics

Scale	Distress	Eustress	Exhaustion	Negative emotions	Positive emotions	Venting
Distress	<b>0.730</b>					
Eustress	-0.179	<b>0.727</b>				
Exhaustion	0.557	-0.227	<b>0.906</b>			
Negative emotions	0.568	-0.159	0.591	<b>0.803</b>		
Positive emotions	-0.289	0.250	-0.355	-0.371	<b>0.804</b>	
Venting	0.330	-0.009	0.297	0.357	-0.070	<b>0.930</b>

As a test of common method bias, we included a scale that is theoretically unrelated to the scales included in the study. We used the blue attitude scale [Miller and Chiodo, 2008]. The mean absolute value of the correlations between the blue attitude scale and the other scales was 0.039. Values less than 0.10 indicate that common method bias is not a threat.

Overall, analysis of the measurement model indicates that our scales have acceptable psychometric properties. Therefore, we turn attention to an analysis of the structural model.

### STRUCTURAL MODEL

The structural model corresponds to the hypotheses presented earlier. In addition to the hypothesized paths, we included two control variables, age and distance learning experiences

(measured as the number of online courses taken prior to the current academic term). Age had a significant relationship with exhaustion and positive emotions. All other control variable paths were non-significant ( $p < 0.05$ ). Table 4 provides statistics for model paths related to our hypotheses.

Table 4: Hypothesis Test Results

Hypothesis	Path coefficient	t-value	p-value
H1: Gender -> Distress	-0.174	3.946	0.000
H2: Gender -> Eustress	0.041	0.555	0.579
H3: Gender -> Exhaustion	-0.041	0.924	0.355
H4: Gender -> Negative emotions	-0.133	2.706	0.007
H5: Gender -> Positive emotions	0.157	3.382	0.001
H6: Gender -> Venting	-0.186	4.190	0.000
Control: Age -> Exhaustion	-0.135	2.959	0.003
Control: Age -> Positive emotions	0.131	2.372	0.018

As the results indicate, there is general support for our research model, with four of the six hypotheses supported at  $p < 0.01$ . There were significant relationships between gender and distress, negative emotions, positive emotions, and venting. Females tend to suffer more distress, feel more negative emotions, and vent those emotions more than males. In contrast, males experience more positive emotions than females. Gender did not have significant relationships with eustress or exhaustion. Although we did not hypothesize any age effects, we did include age as a control variable. Our results indicate that age has a significant negative relationship with exhaustion and a significant positive association with positive emotions. Taken together, we can posit that older students generally have more favorable responses to online courses. This conclusion should be taken with caution, however. Additional research is necessary to investigate age effects more completely.

## V. DISCUSSION

Gender clearly has an effect on emotional responses to distance learning, with the emotion-based reactions being more detrimental for females than males. This is an unfortunate situation, especially when distance learning is mandatory rather than a choice. Our results confirm the general belief that women engage in more emotion-focused coping than men and are also more subject to feelings of distress when faced with stressors (such as taking courses online).

One possible explanation for this is the role of social isolation that increases with distance learning. Women are socialized to be more comfortable in seeking and giving support through their social networks [Greenglass, 2002]. But under COVID-19 restrictions, many normal forms of interpersonal support were eliminated. Although technology-mediated communication has progressed substantially, it does not match face-to-face interactions for gaining social support. Further, when campuses shut down, there were few opportunities for casual, spontaneous encounters that could provide social support. It is not only likely that women felt social isolation more acutely than men, but it also seems that, because women rely more on social support for coping with stressors, women's emotional responses to distance learning are more negative than those of men.

These findings are especially troubling if institutions decide to leverage their investments in distance learning by increasing their permanent online offerings by forcing students into online classes. When this occurs, women may be differentially affected unless adequate support is provided. Note that this does not mean that women will perform better or worse than men, only that they are likely to suffer more negative emotional consequences. Universities should carefully



consider these differential effects when deciding whether to make some courses or programs available only online.

Another interesting result concerns our finding that men have higher eustress responses than women. This may be due to men typically engaging in more problem-focused coping. Men are socialized away from many forms of emotion-focused coping, which also seems to push them towards problem-focused coping. Eustress responses indicate that individuals find a stressful situation as an opportunity for growth and development, which may presuppose a more problem-focused coping approach. In addition, the higher degree of control men feel when facing work-related stressors may provide men with a cognitive path that leads to them perceiving growth opportunities, and therefore increasing eustress responses.

We believe that one of the high-level messages from our findings is that socialization effects have put many women in a disadvantaged position when it comes to education-related stressors. Our findings pertain to a specific context, but it is plausible to believe that these findings will carry over into other stressful educational situations. This is a serious problem that will be difficult to address at a macro level. However, individual institutions and faculty may be able to help mitigate these effects to some extent. For example, universities may be able to develop programs to connect online students in small groups for informal interaction sessions, similar to the “virtual happy hours” that become common during the pandemic. Individual faculty may take similar steps, perhaps by using services such as Discord (a VoIP and instant messaging social platform) to encourage informal online social interaction. Of course, not all faculty will have the time or expertise to implement such interventions.

## VI. FURTHER WORK AND CONCLUSION

Much of our theorizing above pertained to social limitations of distance learning, so we believe it makes sense to further investigate gender differences in perceptions of social isolation, and whether those perceptions mediate the relationships between gender and emotional reactions to distance learning. Future qualitative research would provide additional insights leading to a better understanding of why the gender-based differences we found exist. Such research may uncover novel explanations for these differences. To this end, we will conduct focus-group style interviews and open-ended surveys with students in an attempt to better understand why these gender-based differences exist. We see this as the next paper in this stream of research, but we hope to be in a position to present preliminary findings in this area at the conference if we are fortunate enough to have our work accepted.

The COVID-19 pandemic created stress on an unprecedented global scale. College students were subject to many stressors, some of which were related to the rapid, abrupt transition to online courses. In this study, we demonstrate differential emotional responses among women and men, such that women seem more detrimentally affected emotionally. Although more research is necessary to fully understand these effects, it seems clear that universities that wish to rely more heavily on online courses and programs should carefully consider the potential negative emotional consequences on women.

## VII. REFERENCES

- Amro, H. J., Mundy, M-A. and Kupczynski, L. (2015) “The effects of Age and Gender on student achievement in face-to-face and online college algebra classes” *Research in Higher Education Journal*, 27.
- Ayyagari, R., Grover, V., & Purvis, R. (2011). “Technostress: technological antecedents and implications”. *MIS quarterly*, 35(4), 831-858. <https://doi.org/10.2307/41409963>
- Beaudry, A., & Pinsonneault, A. (2010). “The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use”. *MIS quarterly*, 689-710. <https://doi.org/10.2307/25750701>

- Ching, Y. H. and Hsu, Y. C. (2015) "Online Graduate Students' Preferences of Discussion Modality: Does Gender Matter?" *MERLOT Journal of Online Learning and Teaching* Vol. 11(1), pp. 30-41.
- Elmer T, Mepham K, Stadtfeld C (2020) "Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland". *PLoS ONE* 15(7): e0236337. <https://doi.org/10.1371/journal.pone.0236337>
- Fornell, C. and D.F. Larker (1981) "Evaluating structural equation models with unobserved variables and measurement error". *Journal of Marketing Research*. 18(1), 39-50. <https://doi.org/10.1177/002224378101800104>
- Greenglass, E. R. (2002). "Work stress, coping, and social support: Implications for women's occupational well-being". In D. L. Nelson & R. J. Burke (Eds.), *Gender, work stress, and health* (pp. 85–96). American Psychological Association. <https://doi.org/10.1037/10467-006>
- Harvey, L. H., Parahoo, S., and Santally, M. (2017). "Should Gender Differences be Considered When Assessing Student Satisfaction in the Online Learning Environment for Millennials?" *Higher Education Quarterly*, 71(2) pp. 141–158. <https://doi.org/10.1111/hequ.12116>
- Helgeson, V. S. (2011). "Gender, stress, and coping". In S. Folkman (Ed.), *The Oxford handbook of stress, health, and coping* (pp. 63–85). *Oxford University Press*.
- Huffman, A. H., Whetten, J. and Huffman W. H. (2013). "Using technology in higher education: The influence of gender roles on technology self-efficacy". *Computers in Human Behavior*. 29, pp. 1779-1786. <https://doi.org/10.1016/j.chb.2013.02.012>
- Iwasaki, Y., MacKay, K. J., & Ristock, J. (2004). "Gender-Based Analyses of Stress Among Professional Managers: An Exploratory Qualitative Study". *International Journal of Stress Management*, 11(1), 56–79. <https://doi.org/10.1037/1072-5245.11.1.56>
- Lee, C. M., Cadigan, J. M., & Rhew, I. C. (2020). "Increases in loneliness among young adults during the COVID-19 pandemic and association with increases in mental health problems". *Journal of Adolescent Health*, 67(5), 714-717. <https://doi.org/10.1016/j.jadohealth.2020.08.009>
- Miller, B. K., & Chiodo, B. (2008). "Academic entitlement: Adapting the equity preference questionnaire for a university setting". In *Proceedings of the Southern Management Association Meeting*.
- O'Sullivan, G. (2011). "The relationship between hope, eustress, self-efficacy, and life satisfaction among undergraduates". *Social indicators research*, 101(1), 155-172. <https://doi.org/10.1007/s11205-010-9662-z>
- Prowse R, Sherratt F, Abizaid A, Gabrys RL, Hellemans KGC, Patterson ZR, McQuaid RJ. (2021) "Coping With the COVID-19 Pandemic: Examining Gender Differences in Stress and Mental Health Among University Students". *Frontiers in Psychiatry*. 12, 650-759. <https://doi.org/10.3389/fpsy.2021.650759>
- Ringle, C., Da Silva, D., & Bido, D. (2015). "Structural equation modeling with the SmartPLS". *Brazilian Journal of Marketing*, 13(2).
- Rizvi, S., Rienties, B. and Khoja, S. A. (2019). "The role of demographics in online learning; A decision tree based approach". *Computers & Education* 32 pp. 32-47. <https://doi.org/10.1016/j.compedu.2019.04.001>
- Rovai, a. P. and Baker, J. D. (2005). "Gender Differences in Online Learning: Sense of Community, Perceived Learning and Interpersonal Interactions". *Quarterly Review of Distance Education*. 6(1).
- Sarker. S., Chatterjee, S., Xiao, S. and Elbanna, A. (2019). "The Sociotechnical Axis of Cohesion for the IS Discipline: Its Historical Legacy and its Continued Relevance". *MIS Quarterly*. 43 (3), pp. 695-719. <https://doi.org/10.25300/MISQ/2019/13747>

- Tang, Y. M., Chen, P. C., Law, K. M. Y., Wu, C. H. Lau, Y-y., Guan. J., He, D. and Ho, G. T. S. (2021). "Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector". *Computers & Education*. 168, 104-211. <https://doi.org/10.1016/j.compedu.2021.104211>
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). "Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight". *Psychological Review*, 107(3), 411–429. <https://doi.org/10.1037/0033-295X.107.3.411>
- Weinert, C., Maier, C., Laumer, S., & Weitzel, T. (2014). "Does teleworking negatively influence IT professionals? An empirical analysis of IT personnel's telework-enabled stress". In *Proceedings of the 52nd ACM conference on Computers and people research* pp. 139-147.
- Zwicker, A., DeLongis, A. (2010). "Gender, Stress, and Coping". In: Chrisler, J., McCreary, D. (eds) *Handbook of Gender Research in Psychology*. Springer, New York, NY. [https://doi.org/10.1007/978-1-4419-1467-5\\_21](https://doi.org/10.1007/978-1-4419-1467-5_21)

## ABOUT THE AUTHORS

**Asli Yagmur Akbulut** is Professor of Information Systems at Grand Valley State University. She earned her Ph.D. and M.S. degrees in Information Systems and Decision Sciences from Louisiana State University. Her research interests include IS education, business intelligence and analytics, enterprise systems, information sharing and human-computer interaction. Her work has appeared in publications such as *Communications of the ACM*, *Communications of the AIS*, and *Decision Sciences*. She has served as the President of AIS SIGED for many years. She is currently an associate editor for the *Journal of Information Technology Case and Application Research* and *Journal of the Midwest Association for Information Systems*, and a long-term chair of the AMCIS IS Education Track. She has received numerous recognitions and awards including early tenure and promotion, the Pew Teaching Excellence Award and Alumni Association's Outstanding Educator Award.

**Grant Clary** is an Assistant Professor at Tennessee Tech University. He earned his Ph.D. from Louisiana Tech University. His work on information systems education has been published in journals such as *Communications of the AIS* and the *Journal for Computer Information Systems*, and in many academic conferences. His other research interests include information privacy concerns, surveillance concerns, and other security-related topics.

**Geoffrey Dick** currently teaches at St. John's University in New York City. He has a particular interest (both research and in practice) in online education and its future, including how it might be affected by the Covid-19 pandemic. He is the recipient of the ICIS prize for best paper in education and was awarded the 2009 Emerald Management Review Citation of Excellence for one of the best papers published worldwide in the top 400 business journals. Recent publications have been in the *CAIS*, *JITCAR*, *JISE* and *JITE-R*. He has been a visiting fellow at UC Davis, the University of Malaya, the Tec de Monterrey in Mexico, University of Agder in Norway, and has taught in the prestigious programs of the ESAN Summer School in Lima, Peru, the CETYS International Summer Program in Ensenada (where he holds a Foreign Professor appointment) and at ITAM in Mexico City.

**Craig Van Slyke** is the Mike McCallister Eminent Scholar Chair in Information Systems at Louisiana Tech University. Prior to joining Tech, he was professor and dean of the W.A. Franke College of Business at Northern Arizona University. He holds a Ph.D. in Information Systems from the University of South Florida. His research focuses on behavioral aspects of information technology, security, and privacy.