Remote Academic Advising Using Synchronous Technology: Knowledge, Experiences, and Perceptions from Students

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When COVID-19 struck, higher education experienced major disruptions. Important functions like academic advising were no exception, and the traditional face-to-face model shifted online with remote academic advising (RAA), which uses synchronous communication technologies (e.g., Zoom, Microsoft Teams, Google Meets). In this quantitative research study, 569 students completed an online survey that produced 539 sets of valid data for analysis. Findings showed no significant differences in students' knowledge or experiences with RAA according to their demographic independent variables such as gender, age, ethnicity, major, and RAA experiences. However, significant differences in student opinions on RAA were found among different age and gender groups. The paper identifies barriers to implementing RAA with suggestions to overcome these barriers when utilizing RAA.

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The impact of the COVID-19 pandemic on higher education is far-reaching and unprecedented. For many institutions, learning shifted to an online format, often in the form of remote emergency teaching, as opposed to actual online learning. By April 2020, 98% of the 3,278 U.S. institutions impacted by the COVID-19 pandemic had moved the majority of the in-person classes online (educationdata.org, 2020). This was a significant increase in comparison to the number of students normally enrolled in an online course—where just 33% reported being enrolled in at least one online class in 2017 (National Center for Education Statistics). During the pandemic, various student services also shifted to emergency virtual formats, including academic advising. The sudden disruption of traditional learning and student services caused initial confusion and concern about pivoting from what were primarily in-person interactions to entirely virtual or remote. However, many institutions quickly reacted to this disruption by shifting to remote or online teaching and student services, including academic advising. Academic advising utilized remote academic advising (RAA) to support student learning and success through synchronous communication technologies (e.g., Zoom, MS Teams, Google Meets, Adobe Connect) and asynchronous communication technology (e.g., email, Facebook).

Academic advising refers to a series of planned interactions between students and academic advisors to discuss program requirements, course specifications, learning outcomes, and other related topics and issues in the program of study. It is a professional endeavor "integral to fulfilling the teaching and learning mission of higher education" (NACADA, 2006) and can be implemented through different approaches (e.g., prescriptive, developmental, appreciative; Williams, 2007) centered on the core values of care, commitment, empowerment, inclusivity, integrity, professionalism, and respect (NACADA, 2017). For the purpose of this study, academic advising is defined as instances where an institutional representative (i.e., academic advisor) "gives insight or direction to a college student about an academic, social, or personal matter" (Kuhn, 2008, p. 3). The content of academic advising could be about degree or major requirements, course selections, career direction, on-campus involvement, and, at times, even mental and physical wellbeing (Champlin-Scharff, 2010).

However, this sudden disruption and change in the practice of academic advising created multiple challenges for both students and academic advisors and greatly increased the uses of synchronous communication technologies, which researchers believe will be part of the "new norm" in academic advising. Consequently, this study specifically focuses on exploring synchronous technology to help both students and academic advisors be more effective, efficient, and productive in RAA.

The setting for the study was a public university in the Southeastern United States with a total student population of about 15,000. In March 2020, in response to the COVID-19 pandemic, all

teaching and student services went entirely online, including academic advising. By May 2020, new student orientation sessions were conducted online, and all newly-admitted students attended one online session with an academic advisor. In an effort to understand the impact of the online shift to RAA through synchronous communication technologies before and during the COVID-19 pandemic, students who enrolled from fall 2019 to fall 2020 were surveyed about their knowledge, experiences, and perceptions of RAA.

Literature Review

Technology Use and Academic Advising

Research has shown how interactions with academic advisors have become essential to academic success, retention, and progression for students (Braxton et al., 2014; Campbell & Nutt, 2010; Nutt, 2003; Pascarella & Terenzini, 2005; Tinto, 1987; Young-Jones et al., 2013). In fact, Tinto (1987) was one of the first scholars to show the significant impact academic advisors can have on student success, specifically retention. Academic advisors provide a myriad of important and timely information to students related to coursework, programs/majors, academic supports, graduation, and even career guidance. Although the typical academic advisor and student interaction has been largely face-to-face, technology has become a more frequent support tool, and, in some cases method for academic advisors to work with students. Initially, computer-based technology was used to augment the advisor/advisee relationship, using asynchronous communication (i.e., communication not happening in real time) such as email and online platforms like Facebook (Amador & Amador, 2013). This augmentation has evolved to include interactive social media platforms such as Instagram or Twitter, chat bots, and web-conferencing services like Skype, Zoom, Adobe Connect, Microsoft Teams, and Canvas Conference (Argüello & Méndez, 2019; Gaines, 2014; Henderson & Goodridge, 2015; Junco et al., 2016). Primarily aimed at online learners, adult learners, and graduate students, interactive or synchronous communication technology, which occurs in real time, for academic advising or virtual advising is considered a companion method, rather than a replacement to face-to-face advising, for all types of students (Argüello & Méndez, 2019; Gaines, 2014; Shroeder & Terras, 2015). In fact, web-conferencing platforms (such as Zoom, Adobe Connect, Blackboard Collaborate, MS Teams, Google Meets, and Canvas Conference) provide educators with synchronous, multimodal communication opportunities (Wang et al., 2013) by offering instructor-student and student-student synchronous communications through audio, video, text, chat, presentation display, breakout rooms, whiteboard collaboration, polling, and desktop/application sharing.

As the utilization of technology has increased in academic advising, so too has a discussion about its effectiveness. As recently as 2016, research showed that students' preferred method of communicating or talking with their advisor was still via email (i.e., asynchronous communication; Junco et al., 2016). A study of undergraduate education majors by Gaines (2014) argued that students should not choose either face-to-face advising or online advising as both can be "overlaid upon the other" (p. 43). However, at the time of that study, Skype was the dominant synchronous communication technology used in academic advising and email was still the predominant way to communicate with students. In Junco et al.'s (2016) study measuring how students communicate with their advisors, 61% of students said email was the dominant form of communication with their advisors while only 2% used Twitter or instant message (IM). Similarly, Shroeder and Terras's (2015) study of different types of adult graduate learners found students identified email as the preferred mode of communication with an advisor.

Remote Academic Advising

Using remote academic advising (RAA) in place of, or in augmentation of, face-to-face academic advising is still not widely used. However, a few studies have tried to examine how using synchronous communication technologies for RAA might prove beneficial to students. Jones and Hansen (2014) suggested using synchronous communication technology such as Blackboard Collaborate to conduct advising with a more purposeful, intentional, and holistic approach, serving community college students based on the tools available to advisors and students on that particular platform. The ideas expressed by Jones and Hansen are termed intrusive advising in the literature (Paul et al., 2012). Jones and Hansen (2014) argued that to practice intrusive virtual advising you need a synchronous communication technology that allows "things to happen in real time" (p. 90). The faculty members of Science and Technology

at the University of the West Indies developed a web-based application called AdviseMe to enhance the quality of students' advising experiences (Henderson & Goodridge, 2015), giving students a flexible means of seeking information from an academic advisor via technology as well as the ability to also meet face-to-face. Finally, research at a large suburban community college on the virtual advising experiences of online students reported higher levels of satisfaction of the advising experience and rated the effectiveness, outcomes, and benefits of virtual advising favorably on a Likert-like scale (Madi-McCarthy, 2018).

Technology Acceptance Model (TAM)

As part of his work at the University of Michigan, Davis (1989) developed the Technology Acceptance Model (TAM) to understand how system design features influence how and why end-users accept or reject information. Attempting to understand the causal interrelationships between different factors, Davis examined several aspects of technology and systems adoption. Specifically, three parts of the TAM are used for the conceptual framework of this study: 1) perceived usefulness, 2) perceived ease of use, and 3) attitude toward using—all of which add a theoretical lens with which to view the results from the study. The perceived usefulness and ease of use, in addition to student attitudes toward adopting RAA, inform the results of this study to lend understanding to best and future practices in academic advising. While RAA is not itself a technology, it does utilize synchronous communication technology and can be applied to the adoption of a different practice in academic advising, using technological tools that were widely utilized in higher education during the COVID-19 pandemic.

The review of literature has indicated a significant research gap on the efficacy and favorability of using synchronous communication technology for RAA. Very little research has been done to ascertain how effective synchronous communication technologies are for RAA in addition to face-to-face advising. Moreover, the advent of the COVID-19 pandemic created an immediate need for institutions to provide student services online, which added a greater sense of urgency to examine remote academic advising. All these reasons constitute the rationale for this research on RAA.

Methodology

Research Questions and Hypotheses

A quantitative approach was used to explore the patterns in undergraduate students' knowledge, advising experiences, and perceptions related to remote academic advising (RAA). Specifically, answers to the following research question were sought: Are there any significant differences in students' RAA knowledge, experiences, and perceptions based on their demographic (i.e., gender, age, ethnicity, major, and RAA experiences) information?

The following null hypotheses were developed to guide the research:

- Null Hypothesis 1: There are no significant differences in students' RAA knowledge based on their demographic information.
- Null Hypothesis 2: There are no significant differences in students' RAA experiences based on their demographic information.
- Null Hypothesis 3: There are no significant differences in students' perceptions on academic advising based on their demographic information.

Exploration of answers to the research question above and testing these hypotheses could enhance students' RAA experiences by making them more effective and beneficial.

Research Participants and Survey Instrument

For this study, the participants were undergraduate students from a comprehensive state university in the Southeastern United States. The university has six colleges, offering over a hundred majors in 58 undergraduate degrees, 25 graduate degrees, three doctoral degrees, and 13 professional certificate programs. It provides educational services to nearly 15,000 students.

The survey instrument was developed to collect information essential to answering the research question. The survey was anonymous and was created using the Qualtrics XM software platform, a commercial subscription online survey tool. Additionally, a pilot survey was distributed to members of the target audience to test the online survey system and to obtain feedback on clarity, errors, and impartiality of survey items for improvement. As a result, a few survey items were revised. At the beginning of the survey, ''synchronous communication

Table 1. Survey categories and item information

Survey Category	No. of Items	Item Format
Demographic	5	Multiple choice
RAA Knowledge	3	Likert Scale (1 to 5) choice*
RAA Experiences	5	Multiple & Likert Scale (1 to 5) choice
Perceptions of RAA	9	Likert Scale (1 to 5) choice
Additional Thoughts	2	Open-ended questions for text input

Note. *1=Strongly Disagree; 5=Strongly Agree

technology" was clearly defined with examples. The survey consisted of 24 survey items with multiple choice, Likert Scale, and open-ended questions to collect information in five categories. Table 1 shows the survey categories and item format information.

One week prior to the start of the fall 2020 semester, emails requesting study participation were sent to the 12,019 undergraduate students enrolled at the university through their university email accounts. The survey took an average time of 10 minutes to complete, and 569 students completed the survey in twenty days, with a return rate of 4.73%, which is a normal return rate for a survey at the university level.

Variables and Data Analysis

A number of dependent and independent variables were identified in this study. Independent variables consisted of demographic information such as students' gender, ethnicity, age ranges, semester enrolled, and RAA experience types, while dependent variables were those measuring students' RAA knowledge, RAA experiences, and their perceptions of RAA. Statistical Product and Survey Solutions (SPSS) version 26 was used to conduct the descriptive analysis and multivariate analysis of variance (MANOVA). Tests of homogeneity of variances were checked to meet statistic assumptions to determine any significant findings, followed by Post Hoc tests of LSD and the Pearson's Correlation to test the null hypotheses and to identify specific significant differences among variables. The data were first cleaned to exclude those from non-degree seeking students, graduate students, and partially completed survey data. As a result, 539 sets of valid data were obtained for analysis. In addition, students' answers to the two open-ended questions were used to either verify or confirm the interpretations based on the analysis results.

Findings

All the findings are synthesized from the 24 survey items that can be grouped into five information categories as revealed in Table 1. The findings start with descriptive information of the study participants and then describe the test results and verification of the three null hypotheses with qualitative data from the students.

Descriptive Findings

Among the 539 participants, there were 362 female and 169 male students, in addition to 8 participants who preferred not to disclose their gender information. For participants' ethnicity, 330 participants identified themselves as "Non-Hispanic/White," 114 as "Hispanic," 46 as "African American," 35 as "Other Ethnicity," and 14 participants selected "Prefer Not to Disclose." The survey also included "Asian," "American Indian/Alaska Native," and "Pacific Islander/Native Hawaiian" selections, but, due to the small number of participants identified in these groups, they were recoded as "Other Ethnicity" for analysis purposes. Table 2 illustrates the synthesized information from the five

Table 2. Gender and ethnicity information

	Ethnicity									
Gender	Non-Hispanic/ White	%*	Hispanic	%*	African American	%*	Other Ethnicity	%*	Not Disclosed	%*
Male	109	20.22	36	6.68	11	2.04	12	2.23	1	0.19
Female	219	40.63	76	14.10	35	6.49	23	4.27	9	1.67
Not to Disclose	2	0.37	2	0.37	0	0.00	0	0.00	4	0.74
Total	330	61.22	114	21.15	46	8.53	35	6.49	14	2.60

Note. *The percentage of 539 valid participants.

Table 3. Selected choice frequencies on RAA knowledge

	Strongly Disagree		Disagree		Neither Agree nor Disagree	
Survey Items	**Frequency**	**%***	**Frequency**	**%**	**Frequency**	**%**
I know what remote academic advising is.	14	2.6	35	6.5	43	8.0
I know what synchronous communication technology is.	49	9.1	79	14.7	64	11.9
I know that synchronous communication technology can be used for remote academic advising.	40	7.4	39	7.2	91	16.9

Note. *Percentage of 539 valid data sets.

survey items on the demographic information of surveyed students.

Among the 539 participants, 347 (64.40%) were between 18 to 20 years old, and 105 (19.50%) were between 21 to 23 years old. These two age groups represented over 80% of all participants. Only 86 (15.0%) participants were older than 23. A variety of university majors were reported by the survey participants, with 88 majors representing the six different colleges at the university. Based on reported university statistics of the general student population, the descriptive analysis of the participants mirrors the overall student body of the university in terms of gender, ethnicity, and majors, according to the information from the university website.

Knowledge of RAA

Three survey items were designed to examine students' knowledge of RAA using a Likert scale with five choices from "Strongly Disagree" to "Strongly Agree." Before answering these items in the survey, RAA and synchronous communication technologies were clearly defined using specific examples related to each term. MANOVA test results revealed that there was no significant difference in students' knowledge of RAA according to their demographic (i.e., gender, age, ethnicity, major, and RAA experiences) groups, and, therefore, Null Hypothesis 1 was accepted.

However, it is important to note that the number of participants who selected "Strongly Disagree," "Disagree," and "Neither Agree nor Disagree" when surveyed on RAA knowledge, cannot be ignored (Table 3). In response to the survey item, "I know what remote academic advising is," 14 (2.6%) participants selected "Strongly Disagree," 35 (6.5%) participants selected "Disagree," and 43 (8.0%) selected "Neither Agree nor Disagree." These results indicate that at least 49 (9.1%) participants did not have knowledge of RAA. Similarly, in response to the survey item, "I know what synchronous communication technology is," 49 (9.1%) participants selected "Strongly Disagree," 79 (14.7%) participants selected "Disagree," and 64 (11.9%) selected "Neither Agree nor Disagree." These results indicate that at least 128 (23.8%) participants did not know what synchronous communication technology is. Lastly, for the survey item, "I know that synchronous communication technology can be used for remote academic advising," 40 (7.4%) participants selected "Strongly Disagree," 39 (7.2%) participants selected "Disagree," and 91 (16.9%) selected "Neither Agree nor Disagree." These results indicate that at least 79 (14.6%) participants did not know that synchronous communication technology can be used for RAA (Table 3). The results of items examining students' knowledge of RAA revealed that some students did not have sufficient knowledge to effectively engage in RAA.

Experiences with RAA

Five survey items were designed to study students' experiences with RAA, using both multiple choice and Likert scale choice formats. For RAA experiences, the MANOVA test did not find any significant differences between students according to their demographic groups, and, therefore, Null Hypothesis 2 was accepted. However, the descriptive analysis found that students' RAA experiences were closely related to the semester they were admitted into the university. In total, 226 (42.88%) were newly admitted for the fall 2020 term, 21 (3.9%) were admitted in the summer 2020 term, 27 were admitted in the spring 2020 term, and 262 (48.6%) were admitted

Table 4. Admission semester and remote academic advising experiences

	RAA Only		Mixed		Face to Face Advising Only	
Semester Admitted*	**Frequency**	**%**	**Frequency**	**%**	**Frequency**	**%**
Fall 2020	226	42.88	0	0.00	0	0.00
Summer 2020	0	0.00	21	3.98	0	0.00
Spring 2020	0	0.00	27	5.12	0	0.00
Fall 2019 & Before	0	0.00	200	37.95	53	10.06
Total	226	42.88	248	47.06	53	10.06

Note. *12 participants did not disclose their information on the semester they were admitted to the university.

either in or prior to the fall 2019 term. For RAA experiences, 226 (41.9%) participants had only ever experienced RAA, and 248 (47.06%) had used both face-to-face academic advising and RAA. These two numbers reveal that almost 90% of the participants had experienced RAA prior to the survey and only 53 (10.06%) participants had only experienced face-to-face academic advising. The survey also found that 378 (70.1%) participants had experienced RAA 1- 2 times and 49 (9.1%) had experienced RAA more than 6 times since January 2020. Table 4 presents the synthesized information on RAA from five survey items.

Among the five survey items relating to RAA experiences, one item, "I have needed technology resources (e.g., Internet, Wi-Fi, cellphone, laptop, desktop, iPad) to engage in remote academic advising" with choices from "Strongly Disagree" to "Strongly Agree," examined the needs of students to engage in RAA. Analysis revealed that 40 (7.4%) participants selected "Strongly Disagree" and 18 (3.3%) participants selected "Disagree," indicating that 10.7% of the participants did not feel they had the necessary technological resources to effectively engage in RAA.

Perceptions on Academic Advising

The survey included nine items to measure students' perceptions on academic advising with a focus on RAA, using Likert scale choices from "Strongly Disagree" to "Strongly Agree." Table 5 describes the descriptive information of each survey item. The means for these nine items were between 3.00 and 4.00, which revealed more selections on the positive choices with the lowest mean on Item 6 ($M = 2.97$, $SD = 1.48$), and the highest mean on Item 9 ($M = 4.05$, $SD = 0.97$).

Table 5. Perceptions on academic advising

Survey Items	**n**	**Mean**	**SD**
1. I only discuss matters related to academic studies with my academic advisor in remote academic advising.	537	3.85	1.21
2. If needed, I would discuss any personal issues with my academic advisor in remote academic advising.	538	3.75	1.25
3. If needed, I would discuss any personal issues with my academic advisor in person.	537	3.96	1.14
4. Remote academic advising should be used as much as in person or face-to-face academic advising.	539	3.83	1.21
5. Using synchronous communication technology for remote academic advising is a good idea.	537	3.90	1.01
6. I would prefer to use remote academic advising if I have a choice between face-to-face and remote advising.	537	2.97	1.48
7. Remote academic advising using synchronous communication technology is the future of academic advising.	539	3.14	1.23
8. Face-to-face or in person academic advising should be the way advising is conducted.	538	3.66	1.34
9. Academic advisors should use synchronous communication technology as an option for academic advising.	537	4.05	0.97

Table 6. Descriptive information on choices for item 6 and item 9

	Strongly Disagree		Disagree		Neither Disagree nor Agree		Agree		Strongly Agree	
Selected Items	**n**	**%**	**N**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Item 6	126	23.4	92	17.1	114	21.2	84	15.6	121	22.4
Item 9	13	2.4	16	3.0	113	21.0	185	34.3	210	39.0

The descriptive information on Item 6 showed 126 (23.4%) participants selected "Strongly Disagree," 92 (17.1%) participants selected "Disagree," and 84 (15.6%) participants selected "Neither Agree nor Disagree." For the same item, 121 (22.4%) participants selected "Strongly Agree," and 84 (15.6%) participants selected "Agree." The results indicate split opinions on the preferences of in-person/face-to-face academic advising and RAA. For example, 205 (38.0%) participants selected RAA over in-person/face-to-face academic advising while 218 (40.5%) participants preferred in-person/face-to-face advising over RAA, with 114 (21.2%) participants who were undecided on their preferences for how to engage in academic advising.

Item 9 had the highest mean (M = 4.05, SD = 0.97) with the more positive choices of "Agree" (n = 185, 34.3%) and "Strongly Agree" (n = 210, 39.0%) selected. These choices demonstrated that 395 (73.3%) participants believed that academic advisors should use synchronous communication technology as an option for academic advising (Table 6).

MANOVA tests revealed significant differences in Items 6, 7, and 9 in student age groups and Items 4, 6, 7, and 8 in gender groups. Null Hypothesis 3 (there are no significant differences in students' perceptions on academic advising based on their demographic information) was rejected according to the analysis results. On Item 6 (preferences on academic advising format, specifically in-person/face-to-face academic advising and RAA), significant differences were found between the older than 30 age group (Age ≥30 Group, M = 3.86, SD = 1.473) and all other age groups, and between the 18–20 (M = 2.77, SD = 1.430) and 21–23 age groups (M = 3.22, SD = 1.481). On Item 7 (opinions on the future of academic advising), three significant differences existed between the 18–20 (M = 3.01, SD = 1.227), 21–23 (M = 3.30. SD = 1.302), 24–26 (M = 3.53, SD = 1.164), and ≥30 (M = 3.51, SD = 1.486) age groups. On Item 9 (the use of synchronous communication technology for the future of academic advising), three significant differences were found between the 18–20 (M = 3.93, SD = 0.992), 21–23 (M = 4.17. SD = 0.909), 24–26 (M = 4.53, SD = 0.621), and ≥30 (M = 4.33, SD = 0.969) age groups. Table 7 revealed significant differences in age groups by Post Hoc LSD tests.

MANOVA tests revealed significant differences in Items 4, 6, 7, and 8 in student gender

Table 7. Post Hoc LSD comparison of age groups on perceptions of ARR (items 6, 7, & 9)

					95% CI	
Items	**Comparisons**	**Mean Weight Difference**	**Std. Error**	**Sig* (p ≤ .05)**	**Lower Bound**	**Upper Bound**
Item 6: RAA Preferences	18-20 vs. 21-23	-.451*	.161	.005	-.77	-.13
	18-20 vs. ≥30	-1.092*	.233	.000	-1.55	-.63
	21-23 vs. ≥30	-.641*	.261	.014	0.14	3.93
	24-26 vs. ≥30	-.673*	.337	.046	-1.33	-.01
	27-29 vs. ≥30	-1.224*	.488	.012	-2.18	-.27
Item 7: RAA Future Uses	18-20 vs. 21-23	-.290*	.141	.040	-.57	-.01
	18-20 vs. 24-26	-.517*	.234	.028	-.98	-.06
	18-20 vs. ≥30	-.497*	.205	.015	-.90	-.10
Item 9: RAA Options	18-20 vs. 21-23	-.234*	.107	.029	-.44	-.02
	18-20 vs. 24-26	-.600*	.176	.001	-.95	-.25
	18-20 vs. ≥30	-.395*	.154	.011	-.70	-.09

Table 8. Post Hoc LSD comparison of gender on perceptions of ARR (items 4, 6, 7, & 8)

Items	Comparisons	Mean Weight Difference	Std. Error	Sig* ($p \leq .05$)	95% CI Lower Bound	95% CI Upper Bound
Item 4: RAA Use	Male vs. Female	-.256*	.113	.024	-.479	-.033
Item 6: RAA Preference	Male vs. Female	-.423*	.138	.002	-.693	-.153
Item 7: RAA Future Use	Male vs. Female	-.386*	.119	.001	-.619	-.152
Item 8: In Person AA	Male vs. Female	.212*	.106	.046	.003	.421

groups. On Item 4, "RAA should be used as much as in-person or face-to-face academic advising," significant difference was found between the male group (M = 3.66, SD = 1.291) and the female group (M = 3.92, SD = 1.169) with a mean difference of -0.256. On Item 6, "I would prefer to use RAA if I have a choice between face-to-face and RAA," the significant difference was found between the male group (M = 2.67, SD = 1.445) and female group (M= 3.10, SD = 1.473) with a mean difference of -0.423. For Item 7, "RAA using synchronous communication technology is the future of academic advising," a significant difference was also found between the male group (M = 2.88, SD = 1.301) and female group (M = 3.27. SD = 1.248), with a mean difference of -0.386. On survey Item 8, "Face-to-face or in-person academic advising should be the way advising is conducted," a significant difference was found between the male group (M = 3.80, SD = 1.117) and female group (M = 3.59, SD = 1.143), with a mean difference of 0.212. Table 8 revealed significant differences found in gender groups by Post Hoc LSD tests.

MANOVA results showed that female students were generally more positive about RAA than male students. In particular, female students were significantly more positive about survey Item 4, "RAA should be used as much as in-person and face-to-face for academic advising." Similarly, female students preferred RAA to face-to-face sessions, as revealed in Item 6 when compared to male students. Additionally, female students were more prone to believe Item 7's claim that "RAA using synchronous communication technology is the future of academic advising" than male students. These patterns were also affirmed by the survey results of Item 8: "Face-to-face or in-person academic advising should be the way advising is conducted," whereas male students preferred face-to-face or in-person advising. However, it must be mentioned that the number of male students was disproportionate to the number of female students in this study. Among 521 students who identified themselves as either "male" or "female," male students numbered only 168 (32.24%) while female students numbered 355 (67.75%), which is skewed from the actual student gender ratio of 42% for male students and 58% for female students (reference is not included at this time to conceal author's university). In addition, data from the eight students who preferred not to disclose their gender were not included in the analysis.

Text Messages from the Survey

For survey Item 23, "Please type in additional thoughts and ideas you want to share," 90 (16.70%) participants offered their thoughts and ideas ranging from a few words to over 100 words. The analysis of these qualitative data verified the findings above. In general, students felt that "RAA should definitely be utilized as best as possible for the benefit of me, you, and everyone, considering the circumstances," and "talking to an advisor is just as effective [. . .] online as it is in-person.'' Many students expressed positive opinions about using synchronous communication technology for RAA with the hope that the use of synchronous communication technology could be an alternative option for academic advising because of its convenience. However, many students commented that they missed being on campus and seeing their advisors in-person, as one student described:

> Using synchronous communication technology is a great alternative for students who have difficulty making the time to go to the office on campus or when you only need a few questions answered right before a class starts or getting lunch. I appreciate the university making this accommodation so quickly for the entire student body. I'm hoping this remains an option even when this pandemic is over because it is so convenient

> and easily done … it was just as easy as being in the office with the advisor. I just miss being on campus and I am so excited to return to my second home.

In summary, no significant differences were found in students' knowledge and experiences with RAA; therefore, Null Hypotheses 1 and 2 were accepted. Conversely, significant differences existed in students' perceptions of RAA among different age and gender groups, so Null Hypothesis 3 was rejected.

Discussion

Although no significant differences were found in students' knowledge or experiences with RAA, some findings are informative for implementing RAA in colleges and universities. First, many survey participants are considered "digital natives" who grew up with various digital technology, such as computers and the Internet (Prensky, 2001, p.2). However, assuming that being digital natives automatically imbues the knowledge, skills, and attitudes needed to use technology to solve problems, is misguided (Foulger et al., 2017). This study found that some students did not have the knowledge needed to navigate RAA. For example, they did not know what RAA or synchronous communication technology was or that "synchronous communication technology can be used for RAA." The lack of RAA related knowledge might prevent them from actively utilizing or participating in RAA, which we believe is one of the barriers to successful RAA implementation. It is suggested that academic advisors use various means to promote RAA. When communicating with students before the RAA appointment, academic advisors should provide students with relevant information about RAA to make their RAA experiences effective and beneficial.

Another noteworthy finding in RAA experiences was from the item "I have needed technology resources (e.g., the Internet, Wi-Fi, cellphone, laptop, desktop, iPad) to engage in RAA." This barrier to the successful implementation of RAA should not be ignored. Advisors and universities should be aware that not all students have the needed technological resources to engage in effective RAA. Universities should survey students to ascertain their current technological needs in order to help advisors better assist those students who need technological resources for RAA and to promote overall academic success. Providing students with needed resources, especially a stable Wi-Fi system, is a pre-requisite for successful RAA just as it is for all successful online learning in the era of COVID-19.

Although only a small number of participants (n = 29, 5.4%) selected negative responses on the item "Academic advisors should use synchronous communication technology as an option for academic advising," their opinion cannot be ignored. We suggest that universities and academic advisors find out why these students did not favor the use of synchronous communication technology as an option for academic advising. Their concerns and worries about using synchronous communication technology for RAA should be further investigated to create the best possible scenario for successful RAA usage.

The study also found that older students preferred RAA over in-person/face-to-face academic advising. The possible explanation could be that older students (above 21 years old) have had both in-person/face-to-face and RAA experiences and may clearly understand the differences, advantages, and disadvantages of using these two types of academic advising. Older students also tended to know their academic advisors and have a clearer picture of their academic advising needs. Students in the 18–21 age group tended to be admitted into the university after the spring 2020 semester and many have not had the opportunity to meet their academic advisor in-person. As freshmen, they were not familiar with their program of study and major requirements. Many had no other option but to utilize RAA, and for these reasons, they were looking forward to meeting their advisors, preferring in-person academic advising if given the choice. These findings suggest that new students who have not met their academic advisors in-person might have additional barriers to the successful implementation of RAA. Academic advisors should take advantage of the video functions of synchronous communication technology to establish more personal relationships and stronger rapport with new students. The use of synchronous communication technology with video conferencing can help build up this personal relationship and strengthen the social presence and emotional and cognitive engagement in academic advising (Kucuk & Richardson, 2019; Lowenthal, 2010).

Significant differences in perceptions of RAA were found between gender groups. Female students tended to believe that "RAA should be used as much as in-person or face-to-face academic

advising" and that "RAA using synchronous communication technology is the future of academic advising." In summary, female students tended to prefer RAA over in-person academic advising, while male students tended to prefer the opposite. Gender differences have been well studied and recognized in education (Akabayashi et al., 2020; Iannelli & Smyth, 2008; Pekkarinen, 2012; Stoet & Geary, 2020). Although this finding was discovered and verified through statistical analysis in the study, the real causes of these significant differences in perceptions about academic advising need further and systematic explorations and inquiries.

A few additional points about RAA should be clarified. First, RAA is a relatively new academic advising phenomenon. This article reports what was observed through the lenses of students about RAA. The intention is not to offer a new advising model requiring certain prescribed procedures, ways of communication, or rules to follow in advising. Neither is our intention to ignore the use and functions of asynchronous communication technologies, such as email, LMS, DegreeWorks, and other social media like Facebook, or blended approaches in academic advising. Steele (2018) created the Flipped Advising model that uses technology to "intentionally advance advising as a learning activity" (pp. 65–66) while Wilcox's (2017) model urges the creation of an "advising curriculum" that uses different types of technologies, including both "informational" and "interactive" communication to create a more blended approach. In many ways, both models further support our findings with RAA as another approach for academic advising that relies almost entirely on synchronous technology, as opposed to asynchronous, and is well suited to significant disruptions (like COVID-19) in the traditional academic advising model. Finally, RAA, a new academic advising phenomenon, is unique in many ways with a support of synchronous communication technology that can and should be used to support all Four Pillars of Academic Advising (NACADA, 2006) and properly infused into academic advising.

Limitation and Future Research

This study collected information through an anonymous online survey using multiple-choice and Likert scale question formats with two open-ended question items—one for text inputs for further comments on RAA and the other for leaving student names and emails for follow-up interviews. The survey instrument should have offered a few more items of guided text inputs to solicit more information to explain and verify the choices students made. Another limitation was offering narrow selections on gender (i.e., male, female, and preferred not to disclose only) and ethnicity (e.g., no multiple selections allowed). Therefore, readers need to be cautious about the extent to which the gender-related and ethnicity-related findings of this study can be generalized. Future research of RAA should include more options for gender and multiple options for ethnicity to accurately reflect student demographic information in order to compare and contrast RAA in each gender and ethnicity group. In addition, readers should be aware that the study focused on the uses of only synchronous technology and interactions facilitated through it. Future research should compare and contrast the use of both synchronous and asynchronous technologies to seamlessly integrate them in academic advising. Finally, the study only presents RAA from the student perspective. Future research on RAA should include academic advisors to gain a more complete understanding of RAA from both students and academic advisors.

Recommendations and Conclusion

Many universities opened their campus for the fall 2020 term with reduced class size to comply with the social distancing rules implemented during the COVID-19 pandemic. Although many students and academic advisors enjoy meeting in-person for academic advising, RAA with synchronous communication technology remains an option at many universities. The current status of mixed in-person academic advising with RAA has become the new normal during the COVID-19 pandemic and will continue into the future. Based on the findings and experiences of using synchronous technology for RAA, the researchers offer some suggestions for academic advisors to help implement effective and successful RAA:

- Provide students with needed information including goals and objectives, times, and online location prior to the RAA appointment. Not all students are familiar with synchronous technology, so be sure to provide students with necessary information, such as short online tutorials of the synchronous technology used with RAA.

- Gauge whether students need any technology resources to effectively engage in RAA.
- Familiarize yourself with synchronous technology and always have a "Plan B" in case of technology breakdown.
- When meeting with students using RAA for the first time, use the video conferencing function in synchronous communication technology to help establish personal rapport, increase social presence, and enhance student emotional and cognitive engagement in RAA.
- Be professional in using synchronous communication technology. If possible, dress professionally and use a virtual background from your university in RAA. Unprofessional attire, combined with a background of a messy office, does not create a positive first connection.
- If you need to share your screen with students, make sure the document is ready and easily available. Searching for an important document during RAA and showing unrelated documents on screen can leave an impression of unpreparedness.
- If possible (under the direction of FERPA), always record and save the RAA meetings for future reference.
- Follow-up with students after RAA and, if possible, share with students a summary of what was discussed during RAA after the appointment.

With the increasing use of synchronous communication technology and continued enhancements to connection speeds and access, RAA should not only become more popular, but also change the academic advising landscape in higher education. Effectively implementing RAA for student success should be an increasingly important goal for colleges and universities.

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