




Synchronous Communication Technology for Remote Academic Advising at a State University


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Abstract

The use of synchronous communication technology has significantly increased in recent years for communications in online learning and instruction, especially since the COVID-19 pandemic. Synchronous communication technology, such as Zoom, Google Meets, and Microsoft Teams, is widely adopted by academic advisors to continue their advising services as many universities were forced to move their traditional in-person academic advising to remote academic advising (RAA) in an online format. In this context, we explored the knowledge, experiences, and perceptions of students and academic advisors at a state university using synchronous communication technology for RAA during the COVID-19 pandemic. The study includes data collected from 539 sets of data from students and 28 from advisors. Through descriptive data analysis, the study revealed knowledge and a variation of perception gaps among students, in addition to students and academic advisors for RAA. With research results, we discuss the implications for effective RAA, concluding with suggestions for effective uses of synchronous communication technology to conduct RAA for academic advisors.

Keywords: *academic advising, remote academic advising (RAA), virtual advising, synchronous communication technology, COVID-19 and higher education*

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Introduction

Higher education in the United States made significant adjustments to its current and future practices due to COVID-19. This includes learning how to provide students with the necessary tools and crucial services to ensure their academic success. Before the COVID-19 pandemic, academic advising was conducted primarily face-to-face. When the pandemic hit universities, academic advisors were forced to communicate remotely with their students using synchronous communication technologies (e.g., Microsoft Teams, Zoom, Google Meets, Canvas Conference). This practice introduces remote academic advising (RAA), which offers a solution to social distancing in education systems. Disruptions in the practice of academic advising created multiple challenges for both students and academic advisors and greatly increased the use of synchronous communication technologies, which we believe will be part of the “new norm” in academic advising. According to Kuhn (2008), academic advising was defined as a student support service where an institutional representative (academic advisor) “gives insight or direction to a college student about an academic, social, or personal matter” (p. 3). The content of academic advising could vary from a discussion of program degree or major requirements, course selections, career direction, and on-campus involvement, in addition to the mental and physical well-being of a student and other related topics (Champlin-Scharff, 2010; Flatley et al., 2013; Williams, 2007).

As a professional endeavor supporting student success, academic advising can be implemented through various models such as prescriptive, developmental, and appreciative advising (Williams, 2007) and with core values of caring, commitment, empowerment, inclusivity, integrity, professionalism, and respect embedded in the practice (NACADA, 2017). While using synchronous communication technology for RAA became the “new” method for conducting academic advising during a year of remote instruction and service, the need to better understand it from the perspective of both students and academic advisors becomes obvious. As Crowley (2020) stated, “in every field, including pandemics, there is no single right answer as to what to do; instead, there are competing answers and all of them are subject to revision as we learn more about ourselves, society, and the economy and physical world” (p. 3).

The study was carried out in a state university in the Southeastern United States with a total student population of over 15,000. We surveyed the academic advisors and their 12,019 undergraduate students who enrolled from fall 2019 to fall 2020 with 17 shared items on knowledge, perceptions, and experiences of using synchronous communication technology for RAA during the COVID-19 pandemic. Through data analysis, we sought to help students and academic advisors be more effective, efficient, and productive in using synchronous communication technology for RAA.

Literature Review

An essential function for student success in higher education includes attending academic advising appointments (Braxton et al., 2014; Campbell & Nutt, 2010; Nutt, 2003; Pascarella & Terenzini, 2005; Tinto, 1987; Young-Jones et al., 2013). Academic advising has been shown to improve academic success, retention, and progression among students. Tinto (1987) clearly stated the significant impact that academic advisors have on student success and retention. The role of an academic advisor is to provide students with essential information regarding coursework, programs, and major requirements. Additionally, advisors typically route students to various support services and provide assistance in creating graduation plans and, in some cases, offer career guidance (Smith & Allen, 2014). Academic advising promoted the use of early technology such as email and online platforms like Facebook for asynchronous communication (Amador & Amador, 2013). Recently, two types of technology platforms used in academic advising became popular. The first was social media platforms, namely Instagram, Twitter, and Chatbots, and the second was web-conferencing services, such as Skype, Zoom, Adobe Connect, Microsoft Teams, and Canvas Conference (Arguello & Mendez, 2019;

Gaines, 2014; Henderson & Goodridge, 2015; Junco et al., 2016). Synchronous communication technology, once viewed as an advising method primarily for online and non-traditional students, is now a major tool for advisors, offering flexibility to all types of students (Arguello & Mendez, 2019; Gaines, 2014; Shroeder & Terras, 2015). Currently, synchronous communication technology in the form of a web-conference platform provides educators with synchronous and multi-modal communication opportunities (Wang et al., 2013). These synchronous communication technologies offer desktop or wireless device users instructor–student and student–student synchronous communications through audio, video, text chat, presentation display, breakout rooms, whiteboard collaboration, polling, and screen sharing.

Communication technology, both asynchronous and synchronous, continues to be integrated into academic advising. For instance, advisors and scholars have begun to explore its practical uses for advising college students. Consequently, research as recent as 2016 indicated that students preferred communicating with their advisors via email, which is asynchronous communication (Junco et al., 2016). A study 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 Gaines’ study, Skype was the dominant synchronous communication technology used in academic advising, and email was 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 messaging (IM) (2016). Likewise, Shroeder and Terras’s study of different types of adult graduate learners found that students identified email as the preferred mode of communication with an advisor (2015).

Technology for Academic Advising

As technology progresses, studies have examined its use for academic advising and the benefits it may provide students. For example, Jones and Hansen (2014) suggested using Blackboard Collaborate as asynchronous communication technology to conduct intrusive virtual advising. Intrusive advising is one where advisors practice an intrusive, intentional approach to advising, serving students holistically (Paul et al., 2012). This suggestion primarily targeted community college students and was based on the tools available to both advisors and students. In contrast, other authors argue that to practice intrusive virtual advising, you need asynchronous communication technology that allows “things to happen in real-time” (Jones and Hansen, 2014, p. 90). In addition, the faculty members from the University of the West Indies developed a web-based application called AdviseMe. The purpose of AdviseMe was to enhance the quality of students’ advising experience (Henderson & Goodridge, 2015). AdviseMe allowed students a new way to obtain information from their academic advisors in a more flexible manner while using the technology. This technology, however, did not prevent students from meeting with their academic advisor if needed. Similarly, a study using a Likert-type scale at a large suburban community college on the virtual advising experiences of online students reported higher levels of satisfaction and enhanced effectiveness, outcomes, and benefits of virtual advising (Madi-McCarthy, 2018). The use of synchronous communication technology to engage students in remote academic advising (RAA) was not commonplace before the COVID-19 pandemic, and the literature does not contain many studies on synchronous communication technology for RAA.

However, a recent study of synchronous communication technology for RAA explored undergraduate students’ knowledge, experiences, and perceptions during the COVID-19 pandemic (Wang & Houdyshell, 2021). They found no significant differences in students’ knowledge or experiences of RAA with their demographic independent variables such as gender, age, ethnicity, major, and RAA experiences. However, they found significant differences in student opinions on RAA among different age and gender groups. Also, their article identified barriers to implementing RAA and suggested ways to overcome them when implementing RAA with students. Most importantly, they pointed out that future research should explore how academic advisors use synchronous communication technology for RAA, which supports the research in this

study, to explore the use of synchronous communication technology for RAA with both students and academic advisors together.

A Willingness to Accept and Use New Technology

Several scholars have studied how individuals perceive and ultimately accept new technology for use in their lives. Most of the literature centers on the idea of technology perception and acceptance around its use in the workplace. However, sufficient and relevant data exist to support this study on student knowledge, perceptions, and experience with RAA within this body of literature. In 1989, Davis created the Technology Acceptance Model (TAM) that explained why end-users accept or reject information systems, in addition to how user acceptance was influenced by system design features (Davis, 1989). The model helped to understand the causal relationships among different factors towards the perception and likelihood of use. The three aspects of the TAM that are important for this study include perceived usefulness, perceived ease of use, and attitude toward the use of technology. Davis et al. (1992) then expanded on the original TAM model by examining the extrinsic and intrinsic factors influencing technology acceptance and use. The Motivation Model focuses on motivational factors influencing work performance, pay, or promotions, and they cite perceived ease of use as examples of extrinsic motivation (1992).

Building on Thompson et al.'s (1991) Model of PC Utilization, Taylor and Todd (1995) suggested six major constructs that influence PC usage, all of which are related to employment. However, four of the six constructs could influence the perception and acceptance of technology related to using RAA, including complexity, long-term consequences, social factors, and facilitating conditions (1995). Using Innovation Diffusion Theory, Moore and Benbasat (1991) expanded the attributes of innovation acceptance to study information technology acceptance. Of the seven characteristics, ease of use, compatibility, and results demonstrably are the most relevant to the perception and acceptance of technology related to RAA. Several years later, Venkatesh and Davis (2000) expanded on Davis's original TAM with TAM2. TAM2 focuses primarily on instrumental determinants related to job performance, yet also retains an emphasis on perceived ease of use for individuals.

Venkatesh et al.'s (2003) Unified Model of Acceptance and Use of Technology (UTAUT) is based on the previous models in suggesting three constructs as the main determinants of intention to use information technology. The above-mentioned theories or models related to the adoption of new technology are informative in identifying influential factors in our decision-making when using new technology. These common influential factors can be categorized into knowledge (e.g., perceived usefulness and perceived ease of use), experiences (e.g., effort expectancy), and perceptions (e.g., attitude toward technology use and application). In other words, these theories and models inform us not only on the importance of knowledge, experiences, and perceptions in a study about the adoption of new technology, but also in new policies, new interventions, and new practices in education. Remote Academic Advising is a new approach to academic advising afforded by synchronous communication technology and requires a systemic study of the knowledge, experiences, and perceptions of both students and academic advisors. These areas are used to determine specific influential factors that could inform best and future practices. As RAA afforded by synchronous communication technology becomes more widely used in higher education during the COVID-19 pandemic and beyond, the need to understand both students' and academic advisors' use of RAA via their knowledge, experiences, and perceptions, is urgent and necessary for better and more effective practices.

Purpose and Relevance

The review of literature indicated a significant research gap, with only a few studies examining the use of synchronous communication technology for RAA. Very little scholarship mentioned using synchronous communication technology for RAA as a way to advise students in addition to face-to-face advising. In addition, the advent of the COVID-19 pandemic created an immediate need for institutions to provide student

services online, leading to a greater sense of urgency to examine RAA afforded by synchronous communication technology. All of these constitute the rationale for this research.

Methodology

Research Questions

With the university IRB approval, we used a positivist quantitative approach to explore the differences and similarities in knowledge, academic advising experiences, and perceptions related to the use of synchronous communication technology for RAA between undergraduate students and academic advisors. Specifically, we tried to find answers to these research questions:

1. What are the differences, if any, in knowledge, experience, and perception of RAA between the students and academic advisors?
2. What are the similarities, if any, in knowledge, experience, and perception of RAA between the students and academic advisors?
3. What implications can be drawn for the effective practice of RAA according to the answers to the first two research questions?

Ultimately, we hope that answers to these questions could help both students and academic advisors be more effective, efficient, and productive in using synchronous communication technology for RAA. We used the descriptive statistical method to analyze the shared survey items between the undergraduate students and academic advisors to answer the research questions because descriptive statistics helps us “summarize the overall trends and tendencies” in the data and “provide insight where one score stands in comparison with others” (Creswell, 2008, p. 191) when comparing survey items shared by students and academic advisors.

Research Setting, Survey Instruments, and Participants

The research setting was at a comprehensive state university in the Southeastern United States. The university has approximately 15,000 students enrolled in six colleges. It offers over a hundred majors in 58 undergraduate degrees, 26 master’s degrees, and three doctoral degree programs, in addition to many professional certificate programs. In response to the COVID-19 pandemic, in early March 2020, the university moved its primary learning and student services, including academic advising, entirely online. Early in May 2020, the university offered, for the first time, new undergraduate student orientation sessions in an online format. All newly admitted students attended at least one online session meeting with an academic advisor.

Two survey instruments were developed to collect information essential to answering the research questions with shared items between students and academic advisors, as well as unique items relevant to either students or academic advisors. The survey for students consisted of 24 items and the survey for academic advisors consisted of 25 items. Both surveys used multiple-choice, Likert Scale (1–5) choices and open-ended question formats to collect information in five categories: (1) Demographic, (2) RAA Knowledge, (3) RAA Experiences, (4) Perceptions of RAA, and (5) Additional Thoughts (Table 1).

Table 1. *Survey Categories and Item Information*

Survey category	No. of items for students	No. of items for advisors	No. of shared items	Item format
Demographic	5	4	3	Multiple choices
RAA knowledge	3	3	3	Likert scale (1 to 5) choice*
RAA experiences	5	5	4	Multiple & Likert scale (1 to 5) choice
Perceptions of raa	9	9	5	Likert scale (1 to 5) choice
Additional thoughts	2	3	2	Open-ended questions for text input
Total items	24	25	17	

*Note: 1 = strongly disagree; 5 = strongly agree

The surveys were collected anonymously in Qualtrics XM, an online survey tool. Before the study, both the survey for students and the survey for academic advisors were piloted with 12 students and four academic advisors to test the online survey system and to obtain feedback on the clarity, errors, and impartiality of survey items, which offered targeted improvement for both surveys. As a result, several items were revised and re-grouped to increase their content and construct validities for both surveys.

The participants were undergraduate students and academic advisors from a state university in the Southeastern United States. One week before the start of the fall 2020 semester, the researchers sent email invitations for study participants to the 12,019 eligible undergraduate students using university email accounts. Over 569 students completed the survey in 20 days with a return rate of 4.73%, which is normal for a survey at the university level. The survey for academic advisors was sent through the university email to 47 academic advisors with a much higher return rate of 59.57% ($n = 28$). A reminder email was sent to both students and advisors one week after the initial email invitation was sent. The list of all currently enrolled undergraduate students came from the University Office of Institutional Research and Effectiveness. The advisor list was obtained from the Office of University Advising Services and included all full-time advisors to undergraduate students.

Data Analysis

We first cleaned the collected data to exclude those partially completed survey data. As a result, 539 sets of data from students and 28 sets of data from academic advisors were obtained for analysis. The study used descriptive statistical analysis to identify the trends in the similarities and differences between students and academic advisors in their knowledge, experiences, and perceptions about the use of synchronous communication technology for RAA. The descriptive analysis used survey numbers, its means, and standard deviations, in addition to the percentages to reveal the central tendency, variability, and relative standing relationship between these two groups (Creswell, 2008). We used the Statistical Package for the Social Sciences (SPSS) version 26 for the analyses with a focus on the standing relationship among those shared survey items between the undergraduate students and academic advisors and for the K-means analysis to reveal existing variations among the data.

In addition, Cronbach's Alpha was computed in SPSS to check the internal reliability of the survey items for (a) RAA Knowledge, (b) RAA Experience, and (c) Perceptions of RAA categories. The Cronbach's alpha value for RAA Knowledge (three items) is 0.803, which is higher than 0.70, the value generally "acceptable" in most social science research situations. The Cronbach's alpha value for RAA Experience (four items) is 0.571, and for Perceptions of RAA (five items) is 0.551, both of which are at a lower end of the acceptable value. This is

because Cronbach alpha values are sensitive to the number of items in the scale. Pallant (2011) explained this in SPSS Survival Manual: “With short scales (e.g., scales with fewer than ten items) it is common to find quite low Cronbach values (e.g., .5).” (p. 95). The answers to the two open-ended questions for students and three for academic advisors were also coded for themes and analyzed to either confirm or verify the analysis results of those numeral data in this study.

Findings

The findings reported below start with demographic information of the study participants obtained from the survey and describe the findings in (a) knowledge, (b) experiences, and (c) perceptions regarding the use of synchronous communication technology for RAA, and then (d) findings from answers to the open-ended questions. The report focuses on the findings of shared items while presenting only those unique ones either to students or academic advisors that are essential and significant. The findings section ends with a summary answering the research questions.

Demographic Information

A clear and accurate description of the study participants lays a solid foundation for an understanding of the findings in this study. Student participants included 362 female and 169 male students, in addition to eight participants who preferred not to disclose their gender information. For 28 academic advisors, there were three male and 25 female advisors. The gender ratios in both student participants and academic advisor participants were similar to their gender ratios at the university. For students' ethnicity, 330 students were “Non-Hispanic/White,” 114 “Hispanic,” 46 “African American,” and 35 “Other Ethnicity,” while 14 students selected the choice of “Prefer Not to Disclose.” Of 28 academic advisors, 22 identified themselves as “Non-Hispanic/White,” 1 “Hispanic,” 4 “African American,” and 1 “Other Ethnicity.” The choices of “Asian,” “American Indian/Alaska Native,” and “Pacific Islander/Native Hawaiian” for ethnicity selections were included in the survey and were recorded as “Other Ethnicity” for analysis due to a small number of participants identifying themselves in these groups.

For participant age, 347 (64.40%) students were in the age range between 18–20, and 105 students were in the age range of 21–23 (19.50%). These two age groups represented over 80% of the 539 student participants. Only 86 (15.0%) students were older than 23. The student participants were from 88 majors representing six colleges at the university. Of academic advisors, eight were under 30, five were in their 30s, eight were in their 40s, and seven were older than 50.

Among 28 academic advisors, 22 had a master's degree, three had a doctoral degree, two had a bachelor's degree, and one had an unspecified degree. Based on the public data from the university, the descriptive analysis results of both the student and advisor participants mirror the overall student and academic advisor demographic information in terms of gender, ethnicity, and majors. Table 2 and Table 3 present the synthesized information on the demographic information of the student participants and academic advisor participants.

Table 2. *Gender and Ethnicity Information of the Student Participants*

Gender	Non-Hispanic/White		Hispanic		African American		Other Ethnicity		Not disclosed	
	<i>N</i>	%*	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
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 disclosed	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. Gender and Ethnicity Information of the Advisor Participants

Gender	Non-Hispanic/ White		Hispanic		African American		Other Ethnicity		Not disclosed	
	n	%*	n	%	n	%	n	%	n	%
Male	3	10.71	0	0.00	0	0.00	0	0.00	0	0.00
Female	19	67.86	1	3.57	4	14.29	1	3.57	0	0.00
Total	22	78.57	1	3.57	4	14.29	1	3.57	0	0.00

Note: *The percentage of 28 valid participants.

Knowledge of Synchronous Communication Technology and RAA

The surveys had three shared items on knowledge of RAA in a Likert-scale format with five choices from “Strongly Disagree (1)” to “Strongly Agree (5).” We clearly defined synchronous communication technologies and RAA, using specific examples related to each term, before participants came to these items in the survey. In general, both students and academic advisors were well-informed about synchronous communication technology and its uses for RAA. For Item 8, a majority of 447 students (82.93%) and 27 academic advisors (96.43%) selected “Agree” and “Strongly Agree.” These positive results indicated that more than the majority of students and advisors knew synchronous communication technology and its uses for RAA. Similar positive results were also found on Item 9 and Item 10 with high percentages of “Agree” and “Strongly Agree” selections (Figures 1–3).

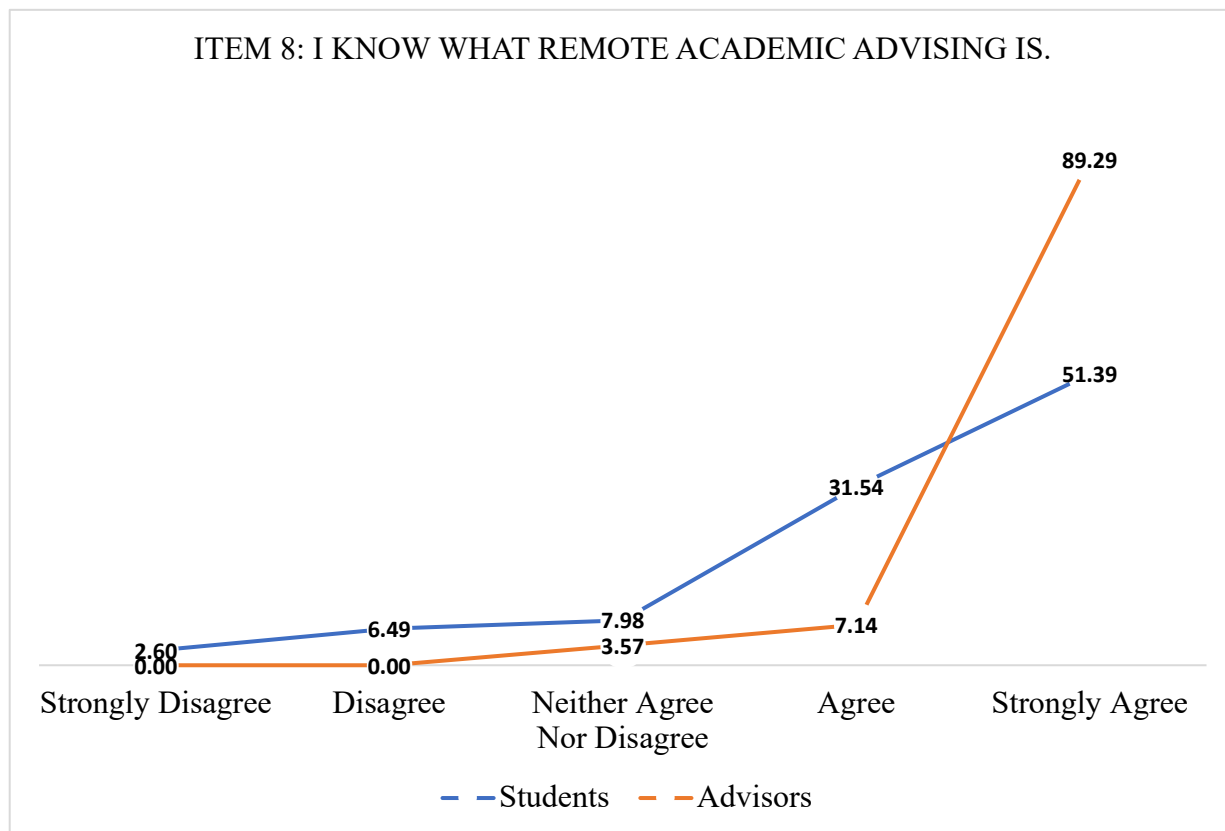
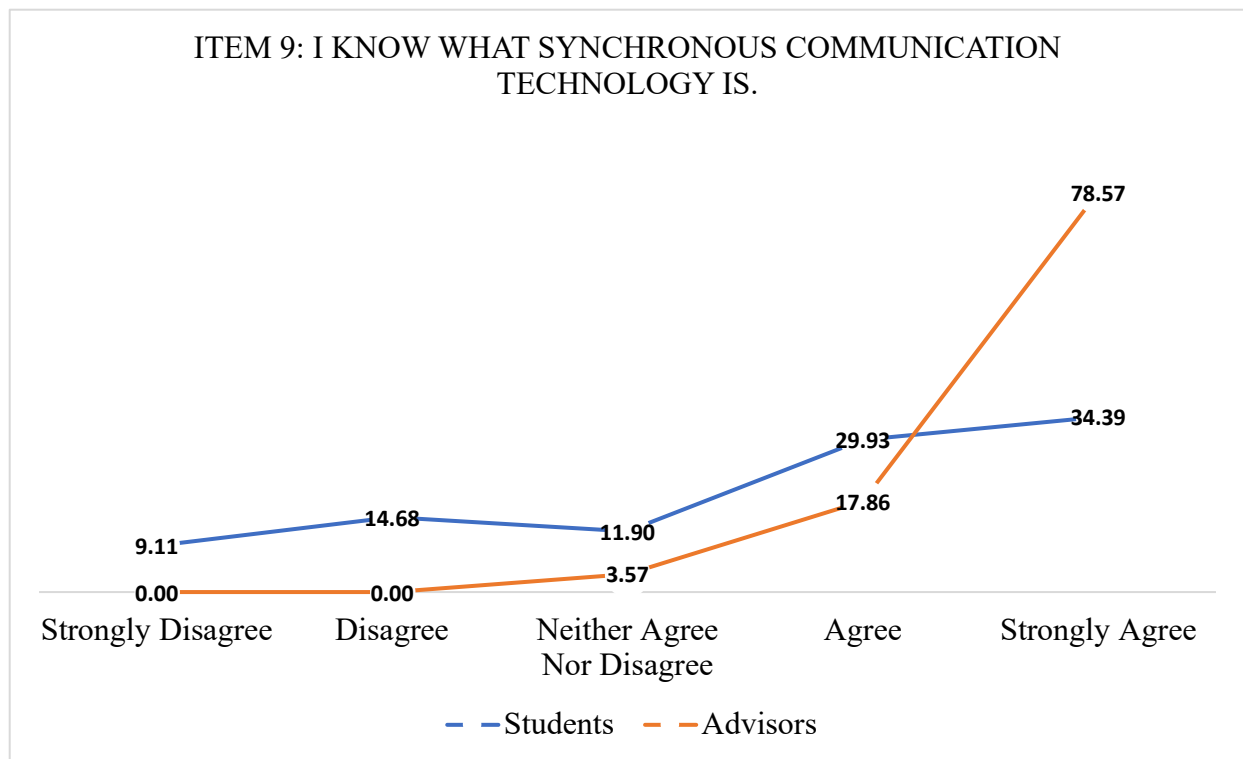
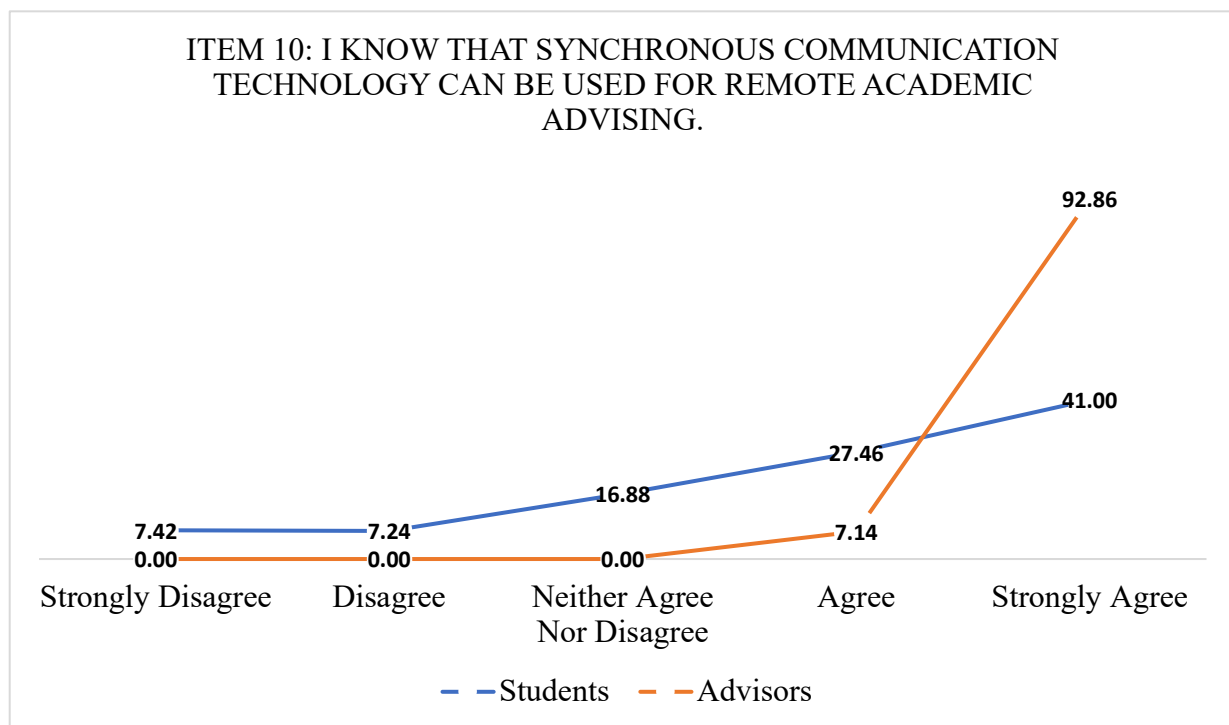
Figure 1. Percentages of Selection by Students and Advisors on Item 8

Figure 2. Percentages of Selection by Students and Advisors on Item 9**Figure 3.** Percentages of Selection by Students and Advisors on Item 10

Some students, however, selected “Strongly Disagree” and “Disagree” on these three items. For Item 9, “I know what synchronous communication technology is,” 49 (9.11%) students selected “Strongly Disagree” and

79 (14.68%) students selected “Disagree.” For Item 10, “I know that synchronous communication technology can be used for remote academic advising,” 40 (7.42%) students selected “Strongly Disagree” and 39 (7.24%) students selected “Disagree.” These negative selections indicate that a knowledge gap in synchronous communication technology and its uses for RAA exists between 79 (14.66%) students and academic advisors (see Table 4).

Table 4. Percentages of Selection on the Knowledge-Related Items

Survey items	Strongly disagree		Disagree		Neither disagree nor agree		Agree		Strongly agree	
	S*	A*	S	A	S	A	S	A	S	A
Item 8	2.60	0.00	6.49	0.00	7.98	3.57	31.54	7.14	51.39	89.29
Item 9	9.11	0.00	14.68	0.00	11.90	3.57	29.93	17.86	34.39	78.57
Item 10	7.42	0.00	7.24	0.00	16.88	0.00	27.46	7.14	41.00	92.86

*s = students; a = advisors

Item 8: I know what remote academic advising is.

Item 9: I know what synchronous communication technology is.

Item 10: I know that synchronous communication technology can be used for remote academic advising.

Experiences of Synchronous Communication Technology and RAA

Four shared items reveal experiences of synchronous communication technology and RAA for both students and academic advisors. For Item 4 on the frequency of the RAA experience, 378 (72.41%) students had participated in RAA 1 to 2 times, and 80 (15.33%) students participated in RAA 3 to 4 times. Another 64 (12.16%) students participated in RAA more than five times. However, among 28 academic advisors, only five advisors participated in RAA less than 20 times, while the other 23 advisors participated in RAA over 20 times (See Table 5).

Table 5. Percentages: RAA Experience Frequency by Students and Advisors

RAA Exp.	1-2 times	3-4 times	5-6 times	6-10 times	11-15 times	16-20 times	>21 times
Students	378	80	15	49	0	0	0
Advisors	0	0	1	0	3	1	23

The results indicate that both students and academic advisors varied greatly in the number of times they experienced RAA since January 2020. For Item 5 on experiences with synchronous communication technology, 282 students (52.42%) had used some form of synchronous communication technologies before 2020 (Figure 4). For Item 6 on the use of synchronous communication technology for RAA, 297 students (55.20%) had used synchronous communication technology for academic advising before the spring semester of 2020 (Figure 5). Among these items on RAA experiences, Item 7, “I have needed technology resources (e.g., the Internet, WiFi, cellphone, laptop, desktop, iPad, etc.) to engage in remote academic advising,” examined the essential resources to even engage in RAA. Analysis revealed there was a notable discrepancy on this item between students and academic advisors. For Item 7, 40 (7.4%) students selected “Strongly Disagree” and 18 (3.3%) selected “Disagree.” These numbers indicate that 10.7% ($n = 58$) of students did not feel they had the necessary technical resources to engage in RAA (Figure 6).

Figure 4. Percentages of Selection by Students and Advisors on Item 5

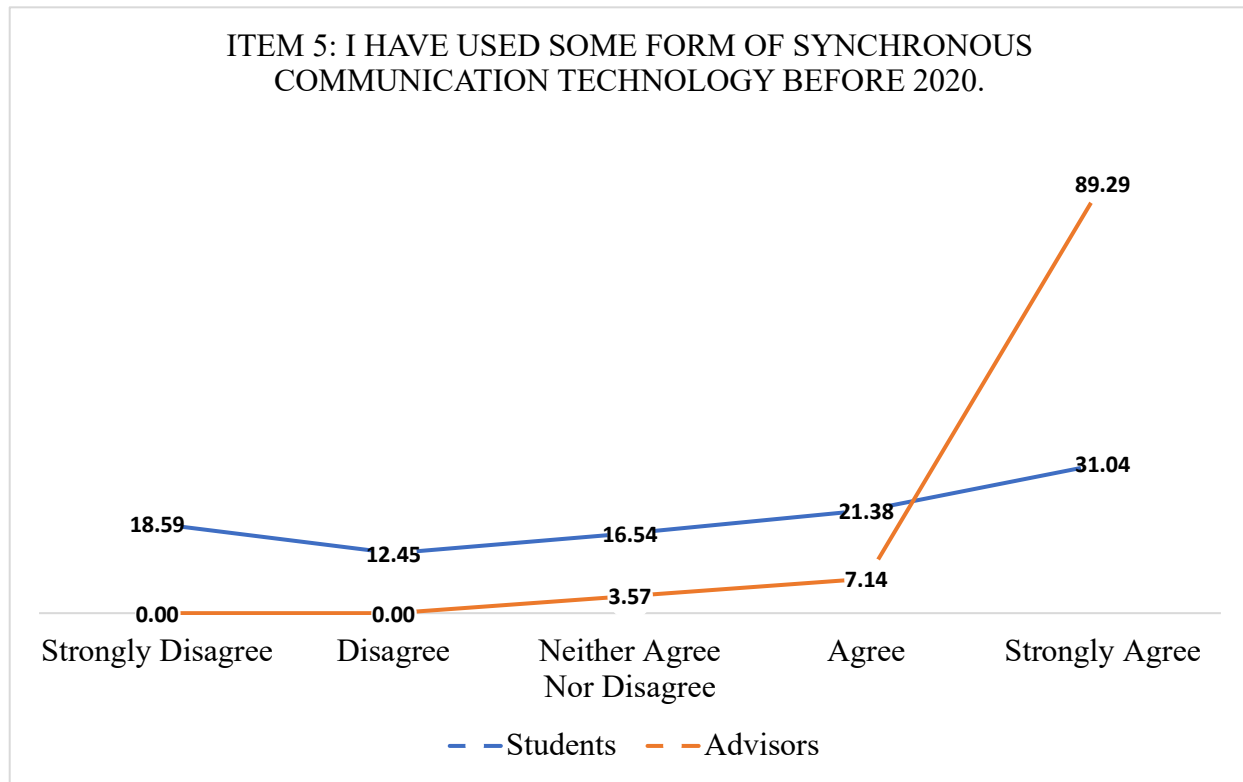


Figure 5. Percentages of Selection by Students and Advisors on Item 6

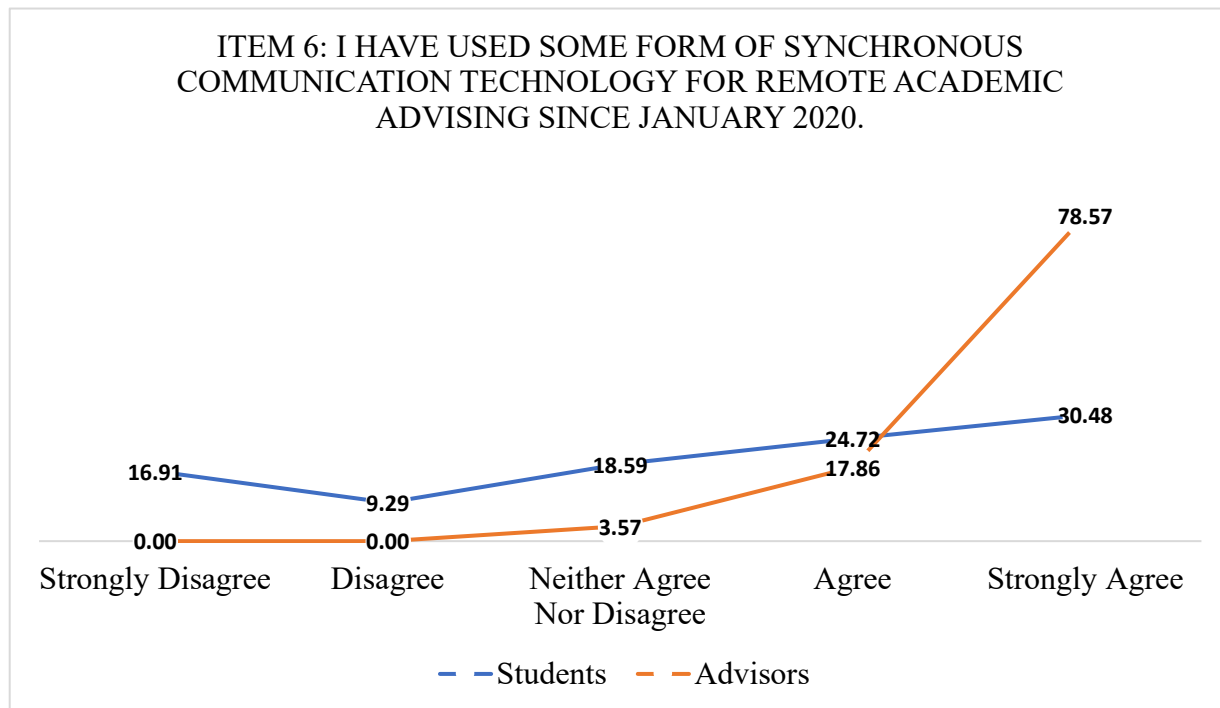
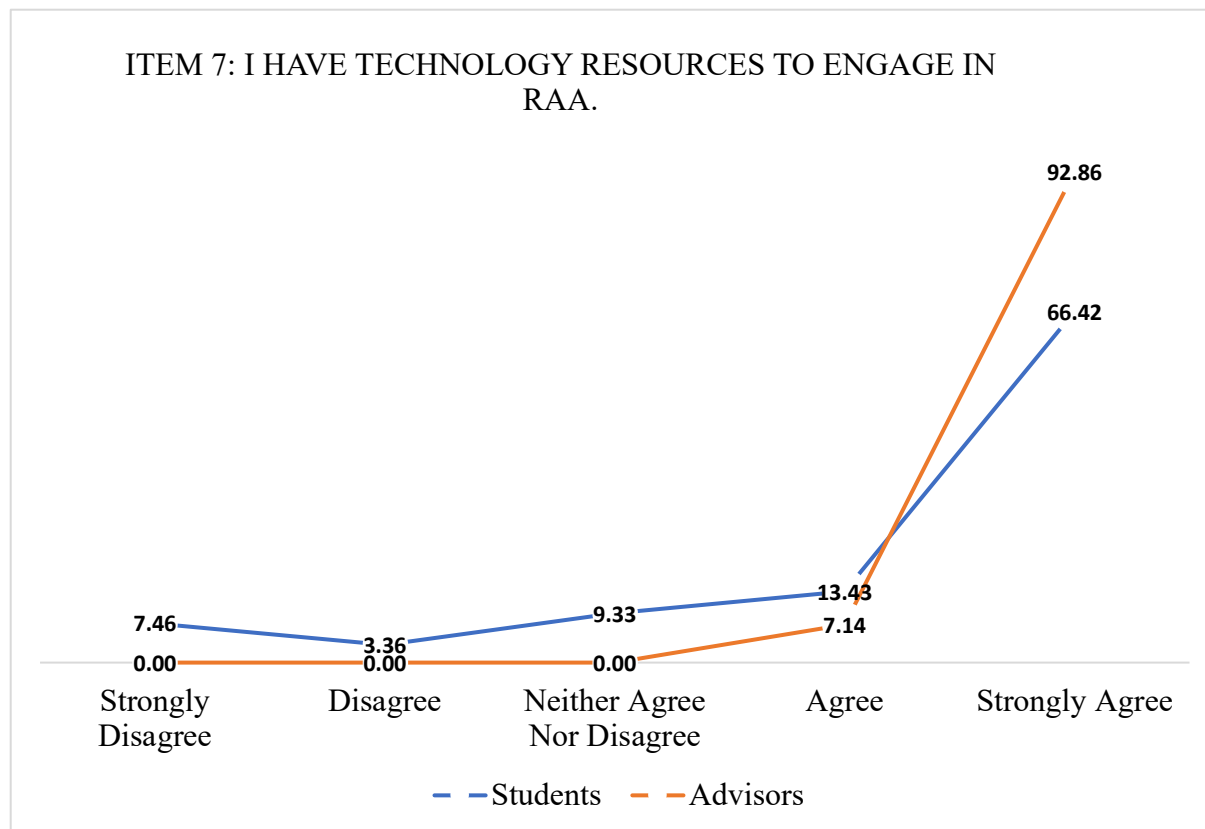


Figure 6. Percentages of Selection by Students and Advisors on Item 7

Perceptions of Synchronous Communication Technology and RAA

Five shared items between students and academic advisors using Likert scale choices from “Strongly Disagree” to “Strongly Agree” focus on the use of synchronous communication technology in RAA (Items 11 and 12) and preferences between RAA and in-person academic advising (Items 13, 14, and 15).

Table 6. Descriptive Information on Perception-Related Items

Shared survey items*	Students			Advisors		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Item 11	537	3.89	1.062	28	4.75	0.518
Item 12	539	3.13	1.276	28	4.93	0.262
Item 13	539	3.83	1.208	28	4.86	0.448
Item 14	537	2.97	1.473	28	4.75	0.518
Item 15	538	3.67	1.133	28	4.86	0.448

Note. * Item 11: Using synchronous communication technology for remote advising is a useful part of academic advising.

Item 12: Remote academic advising using synchronous communication technology is the future of academic advising.

Item 13: Remote academic advising should be used as much as in-person or face-to-face academic advising.

Item 14: I would prefer to use remote academic advising if I have a choice between face-to-face and remote advising.

Item 15: Face-to-face or in-person academic advising should be the way advising is conducted.

Students responded positively in general towards the use of synchronous communication technology for RAA with variations in specific items. Among these shared items, students had the highest mean ($M = 3.89$, $SD = 1.062$) on Item 11, “Using synchronous technology for remote advising is a useful part of academic advising,” and the lowest mean ($M = 2.97$, $SD = 1.473$) on Item 14, “I would prefer to use remote academic advising if I have a choice between face-to-face and remote advising.” However, with the highest mean on Item 11, 48 (8.94%) students did not believe that “using synchronous communication technology for remote advising is a useful part of academic advising” by selecting “Strongly Disagree” and “Disagree,” while 134 (24.95%) students selected “Neither Agree nor Disagree.” The same pattern of selection was also found with Item 12, “Remote academic advising using synchronous communication technology is the future of academic advising.” For Item 12, 85 (15.77%) students selected “Strongly Disagree,” 62 (11.50%) students, “Disagree,” and 178 (33.02%) students, “Neither Agree nor Disagree.” This indicates that a noteworthy number of students did not hold positive perceptions towards using synchronous communication technology for RAA, although 214 (39.71%) of the students did (see Table 7).

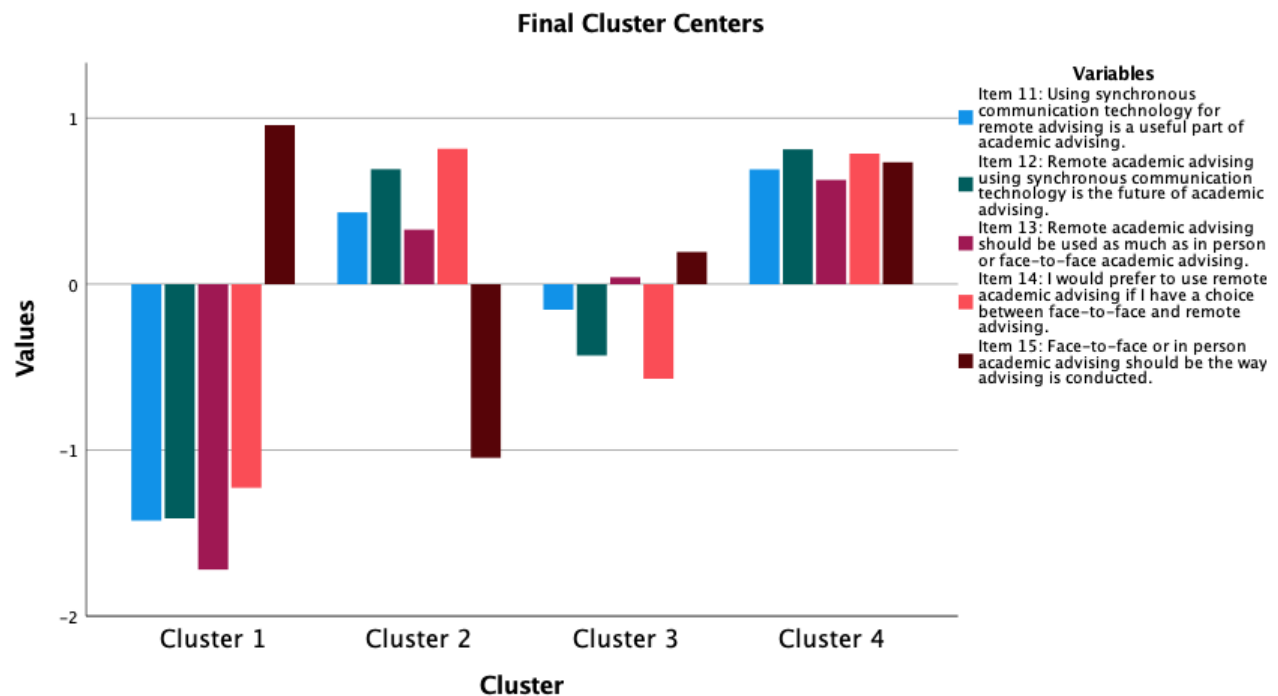
Table 7. Percentages of Selection on Perception-Related Items by Students

Shared survey items*	Strongly disagree		Disagree		Neither disagree nor agree		Agree		Strongly agree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Item 11	19	3.54	29	5.40	134	24.95	165	30.73	190	35.38
Item 12	85	15.77	62	11.50	178	33.02	124	23.01	90	16.70
Item 13	35	6.49	43	7.98	107	19.85	147	27.27	207	38.40
Item 14	126	23.46	92	17.13	114	21.23	84	15.64	121	22.35
Item 15	22	4.09	60	11.15	152	28.25	145	26.95	159	29.55

Note. Item 11: Using synchronous communication technology for remote advising is a useful part of academic advising.
 Item 12: Remote academic advising using synchronous communication technology is the future of academic advising.
 Item 13: Remote academic advising should be used as much as in-person or face-to-face academic advising.
 Item 14: I would prefer to use remote academic advising if I have a choice between face-to-face and remote advising.
 Item 15: Face-to-face or in-person academic advising should be the way advising is conducted.

The results of K-means analysis through SPSS revealed the distinctive clusters existing among students’ perceptions about synchronous communication technology and its use for RAA, which was confirmed by the variations in choice selections among the students (see Figure 7).

Academic advisors had high means on these shared items indicating very positive perceptions towards synchronous communication technology and its uses for RAA. With a highest mean of 4.93 out of 5.00, academic advisors strongly believe that RAA afforded by synchronous communication technology will be the future of academic advising, as revealed in Table 6. To sum up, a majority of students and most of the academic advisors perceive positively the use of synchronous communication technology for RAA during the COVID-19 pandemic, while a noteworthy number of students did not share the same perceptions and would prefer in-person academic advising if given a choice.

Figure 7. Cluster Center Among Students for Perception-Related Items

Open-Ended Survey Items

For one open-ended survey item, “Please type in additional thoughts and ideas you want to share,” 90 (16.70%) student participants offered their thoughts and ideas ranging from a few words to over 100 words. The analysis of these qualitative data supports the findings presented above. In general, students share this person’s response: “due to COVID-19, I believe the safest way to communicate is through remote access. I feel that talking to an advisor is just as effective online as it is in person” (Michael, a student pseudonym). Many students clearly expressed their opinion on their preferences for using synchronous communication technology for RAA and believed “RAA with synchronous communication is the way universities should move in the future.” However, they miss seeing their advisors in person, as one student, Sasha (a pseudonym), described:

In-person advising with my advisor was so beneficial for me when I initially started at the university. She explained my plan to me in such an intuitive way, but she also had an atmosphere in the room that made me feel welcomed and able to ask questions. Now I email her whenever I have questions, but this has been made easy because of the relationship that was built face-to-face. I think that the relationship could have been built via video chats.

Answers to the open-ended survey items from academic advisors also support the overwhelmingly positive perceptions towards synchronous communication technology and its uses for RAA. The simple fact that “I’m still available to all my students and able to do my job successfully” and “RAA has been successful for serving the purpose of advising” during COVID-19 well reflected the perceptions of all academic advisors. Like many students, some advisors also feel in-person academic advising was essential and could not be fully replaced by RAA, as one academic advisor, Mat (a pseudonym), described below.

RAA is a useful option for certain circumstances (i.e., public health crises, distance learners, etc.) but should not be used as a replacement for face-to-face advising, if possible. It's a great addition to the services we offer for students who work or [are] on otherwise “non-traditional” schedules, students who commute to campus, or fully virtual students.

The survey for academic advisors had an additional open-ended item asking what training they need for RAA. The results reveal that the most needed training topics were Zoom, Microsoft Teams, university policies, and how to engage students in RAA according to the frequencies ranging from high to low.

Summary

To answer the research questions, we found both students and advisors had relevant knowledge of synchronous communication technology and its uses for RAA, with great variations among students. Both students and advisors were well experienced with RAA using synchronous communication technology. However, a notable number of students did not have the technology resources to fully engage in RAA. For perceptions, both students and advisors believed synchronous communication technology used for RAA was a good option and both students and advisors felt positively towards synchronous communication technology and its uses for RAA. However, the number of students who held different perceptions was too large to be ignored. Finally, RAA could not and should not replace in-person academic advising.

Discussion

The study finds that the use of synchronous communication technology for RAA is a beneficial way to deal with the disruption caused by COVID-19 and helps the university to continue providing academic advising to its students. To prepare us for a “new norm” and any possible future disruptions, it is important to draw implications from the findings in this study. As with any new technology usage, whether as a new platform or a new application, users make decisions to adopt in part by perceiving its ease, applicability in their lives, and their direct experiences with it, which usually are important determinants of their attitudes towards it. The decision to adopt is often influenced by a user's knowledge, experiences, and perceptions. This is how the researchers chose to explore them to determine the current and future practice of RAA.

First, this study finds that some students did not have sufficient knowledge relevant to the practice of RAA. The lack of RAA-related knowledge might prevent them from actively participating in RAA. The knowledge gap that exists among students and between some students and academic advisors could be one of the barriers to the successful implementation of RAA. Although most student participants grew up together with various digital technology such as computers and the internet, it would be a mistake to assume that they automatically had technology competencies, which consist of knowledge, skills, and attitudes in using technology to solve real-life problems (Foulger et al., 2017). We suggest that academic advisors should go above and beyond normal communication to promote RAA. When communicating with students before an advising appointment, academic advisors should provide students with relevant information about technology and RAA to make their RAA experiences effective and beneficial. At the university where the study was conducted, advisors use a platform called Appointment Manager for students to schedule advising appointments. According to advisors, it can indicate which type of appointment a student is interested in scheduling (e.g., face-to-face, virtual, telephone). However, RAA was not an option in Appointment Manager until well into the pandemic. Any changes to advising options had to be made at the advising leadership level. Institutions need to fully support the use of RAA and communicate its use to students regularly, not just as part of a special circumstance like COVID-19.

A finding on the necessary technology resources (e.g., the internet, Wi-Fi, cellphone, laptop, desktop, iPad, etc.) to engage in RAA should serve as a reminder that not all students have the technology resources to engage in RAA. We suggest that academic advisors and universities should survey their students to

understand their current technological needs and update this information regularly. Providing students with needed technology resources, especially with a stable Wi-Fi system, is an essential prerequisite for successful RAA in the era of COVID-19 and the future.

The study also finds that both students and academic advisors perceive synchronous communication technology and its uses for RAA positively in general because it bridges the gap between students and academic advisors with RAA during the COVID-19 pandemic (Wang & Houdyshell, 2021). This result is well in alignment with the concepts of the positive relationship between the perceived uses and technology-related changes and technology adoptions (Davis et al., 1992; Moore & Benbasat, 1991; Rogers, 2003). RAA is perceived as a great option by many students and all academic advisors in the surveys. However, it is worth mentioning that both students and academic advisors believe that RAA could not and should not replace in-person advising. Some students, especially those newly admitted, prefer in-person academic advising over RAA. The possible explanation for their preference for in-person academic advising over RAA could be that these students have not had any in-person academic advising. They have not had the opportunity to meet their academic advisor in person due to the COVID-19 pandemic. In addition, they might not be familiar with their program of study and major requirements. Many of these newly admitted students had no other option but to use RAA. For these reasons, they were looking forward to meeting their advisors and preferred in-person academic advising, given a choice. These findings reveal that students who have not met their academic advisors in person might have additional barriers to the successful implementation of RAA. The use of synchronous communication technology with video conferencing can help academic advisors establish personal relationships and build stronger rapport with newly admitted students, which strengthens the social presence and emotional and cognitive engagement in academic advising (Kucuk & Richardson, 2019; Lowenthal, 2010).

The use of RAA significantly increased during the COVID-19 pandemic. This study reveals what both students and academic advisors observed in regards to synchronous communication technology and its uses for RAA. Steele (2018) created the model of Flipped Advising, in which technology was used to “intentionally advance advising as a learning activity” (p. 65–66). Wilcox’s (2017) model urges the creation of an “advising curriculum” and advocates the use of different types of technologies, with both “informational” and “interactive” communication as more of a blended approach. In many ways, both models further support our findings with RAA, a new approach to academic advising that relies almost entirely on synchronous technology as opposed to asynchronous and is well suited to significant disruptions (e.g., COVID-19). It is not our intention to ignore the use and functions of asynchronous communication technologies such as email, LMS platforms such as DegreeWorks, and other social media, such as Facebook, in academic advising. On the contrary, we believe that RAA would be more efficient and more effective when both synchronous and asynchronous communication technologies are used.

Finally, RAA, as a new approach to academic advising, is unique in many ways with the support of synchronous communication technology. RAA can and should be used to support the Concept, Core Value, Core Competencies, and the Standards and Guidelines of academic advising promoted by the National Academic Advising Association (NACADA) as its Four Pillars of Academic Advising (NACADA, 2006) when properly infused. We hope that the findings of the study will be informative to academic advisors for more effective implementation of RAA and to other people interested in synchronous communication technology to enlighten its utilization in other fields.

It is a mistake to assume that RAA with synchronous communication technology would happen smoothly between students and academic advisors. Technology integration is never a simple application of its functionalities but a more systemic way of solving real-life problems (Koehler & Mishra, 2014; Reigeluth & Karnopp, 2020; Shim et al., 2002). Universities should take various opportunities to train academic advisors to not only be proficient in synchronous communication technologies but also in how to use its

communication functions effectively to engage students in RAA. As a new academic advising approach, many other issues occur with the use of synchronous communication technology. Issues such as student privacy, information security, and technology resources are obvious and identifiable challenges to the effective implementation of RAA. Universities have an obligation to provide training for their academic advisors on how to deal with these issues so that they are competent not only with technology uses but also in dealing with any issues associated with using RAA.

Limitations and Future Research

We collected the information for this study through two anonymous online surveys using multiple-choice, Likert-scale choice, and open-ended questions. There was only one survey item available for text input for students to leave comments on RAA, while the other open item allowed students to leave their names and emails for follow-up interviews. The survey instruments should have offered a few more items of guided text inputs to solicit more accurate information to explain the choices students made. Another limitation was no differentiation among synchronous communication technologies in this study. Different synchronous communication technologies have different functionalities and characteristics for communication. Consequently, the uses of different synchronous communication technologies (e.g., phone chat vs. video chat, and Zoom vs. Microsoft Teams) should yield different RAA experiences and effects. Future research should consider different types of synchronous communication technology and their effects on RAA from both students and academic advisors. In addition, readers should be aware that the study focused on RAA that uses only synchronous communication technology and interactions facilitated through it. Future research should compare and contrast RAA that uses both synchronous and asynchronous communication technologies.

Recommendations and Conclusion

Although many students and academic advisors enjoy meeting in person for academic advising, using synchronous communication technology with RAA should remain a viable option at many universities. A recent “readiness survey” for online learning completed at the university revealed that many students would like to keep “online learning” and “online advising” options in their future studies. Based on the findings from this study and experiences we had in RAA, the researchers offer some suggestions for academic advisors to help implement effective and successful RAA.

- Advisors should provide their students with needed information before RAA appointments. Our study found that some students did not have sufficient knowledge relevant to the practice of RAA. This information should include goals, objectives, times, and the online platform that will be used including online tutorials on how to use the synchronous technology for RAA before an advising appointment.
- Advisors must make sure that students have the required technical resources to engage in RAA before the advising appointment. Our study indicated that not all the students had the technological resources needed for RAA.
- Advisors need to understand how to use and access each of the major synchronous technologies that are made available to them and to always have a Plan B in case a technology issue arises from either the advisor’s or student’s side. The interviews in our study revealed that technology breakdowns were one of the barriers to RAA.
- To help enhance the student’s emotional and cognitive engagement in RAA, the first appointment should always be done through a video conferencing function. This will help build a personal rapport with the student while using synchronous communication technologies. Our study found that newly admitted students preferred meeting their advisors in person over RAA.
- Conveying a positive first impression is an important part of the academic advising meeting. Advisors should be dressed professionally, use a virtual background from their university during the RAA

appointment, or make sure that their office space is not distracting. The RAA meeting should be conducted with the same amount of professionalism as a face-to-face appointment.

- Advisors need to have the necessary documents readily available before sharing the screen with students during RAA. This will help to ensure that any unrelated documents do not appear on the screen and will show the student that you have been prepared to meet with them.
- Advisors should follow FERPA guidelines in RAA. Record meetings and only share with students the password-protected meeting links.
- After RAA appointments, advisors should follow up with students and share any information that students can note for future reference.

Synchronous communication is becoming more prevalent within the academic advising landscape and higher education in general. RAA should be a staple within the advising community to meet the diverse needs of both students and advisors. Effectively implementing Remote Academic Advising is another resource for universities to continue ensuring student success within their institutions in the new norm.

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