

HACETTEPE UNIVERSITY  
INSTITUTE OF POPULATION STUDIES

**INVESTIGATING MECHANISMS OF SOCIAL DESIRABILITY  
BIAS IN SELF-ADMINISTERED SURVEYS**

Abdirahman Saeed MOHAMED

Supervisors:

Prof. Dr. A. Sinan TÜRKYILMAZ

Asst. Prof. Dr. Tuğba ADALI

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To my mother  
Sahra Ibrahim Yusuf



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Abdirahman Saeed Mohamed

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Member (Chair): .....

Prof. Dr. Ayşe Gündüz HOŞGÖR

Middle East Technical University, Faculty of Arts and Sciences, Department of Sociology

Member (Supervisor): .....

Prof. Dr. A. Sinan TÜRKYILMAZ

Hacettepe University, Institute of Population Studies, Department of Social Research Methodology

Member (Supervisor): .....

Dr. Tuğba ADALI

University College London, Centre for Longitudinal Studies

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Student No: N16147093

Department: Social Research Methodology

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### ADVISOR APPROVAL

APPROVED.

Prof. Dr. A. Sinan TRKYLMAZ

Asst. Prof. Dr. Tuęba ADALI

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# INVESTIGATING MECHANISMS OF SOCIAL DESIRABILITY BIAS IN SELF-ADMINISTERED SURVEYS

*by* Abdirahman Saeed Mohamed

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## ABSTRACT

This dissertation addresses social desirability bias, also known as socially desirable responding (SDR), a tendency of some respondents to provide responses they consider to be socially favorable. Though SDR declines in self-administered modes, the mechanisms behind SDR in self-administered modes are not fully understood. To improve the understanding of SDR in a self-administered setting, this dissertation aims to empirically investigate the effects of survey attributes and has three-fold objectives: First, to examine whether introduction interest, survey topic, survey sponsor, and perceived topic sensitivity prompt a systematic tendency to choose socially desirable response categories; second, to examine whether the order in which the response categories are presented precipitates the tendency to choose socially desirable response categories; and finally, to investigate whether the increment of item-related sensitivity prompts the tendency to SDR. To achieve the first two objectives, primary data were collected through a 2×2×2 online survey experiment from Hacettepe University students, with a sample size of 386. To achieve the third objective, a combination of primary and secondary data was used. The secondary dataset used in the dissertation is from the 2012 Argentina Global School-Based Students Health survey with a sample size of 28,368.

Respondents who perceived the survey topic as sensitive marginally tended more to choose socially desirable response categories but the survey topic and sponsor are insignificant. Intriguingly, respondents who rated the survey introductory statement interesting demonstrated more tendency to SDR. The response order effect was significant and socially desirable response categories were more frequently chosen when they appeared first on the list. Also, responding in the socially desirable direction intensified as the sensitivity of survey items increased, and respondents with more missing responses tended to respond in the socially desirable direction.

**Keywords:** SDR, survey topic, sponsor, Introduction-Interest, perceived topic sensitivity, the sensitivity of survey items, self-administered surveys

## ÖZET

Bu tez, sosyal istenirlik yanlılığı olarak adlandırılan, kimi anket katılımcılarının sosyal olarak daha uygun bulunacağını düşündükleri yanıtları verme eğilimlerini ele almaktadır. Sosyal istenirlik yanlılığı cevaplayıcıların anketleri kendi kendilerine doldurdurmaları durumunda ise daha düşüktür olmasına rağmen, fakat cevaplayıcıların kendi kendilerine anket doldurdıkları yaklaşımlarda sosyal istenirliği yönlendiren mekanizmalar çok net değildir. Cevaplayıcıların kendi kendilerine anket doldurdıkları yaklaşımlarda sosyal istenirlik etkilerini daha iyi anlayabilmek için bu tezde anket özelliklerinin ampirik olarak incelenmesi amaçlanmaktadır. Tezin üç temel amacı vardır: Birincisi, anketin tanıtımına duyulan ilginin, anket konusunun, anketi yaptıran kişi/kuruluşun ve anket konusunun ne kadar hassas algılandığının sosyal olarak istenen yanıt kategorilerini seçmeye yönelik sistematik bir eğilimi teşvik edip etmediğini incelemek; ikincisi, yanıt kategorilerinin sunulduğu sıranın sosyal olarak istenen yanıt kategorilerini seçme eğilimine etkisini incelemek; son olarak da, sorular hassaslaştıkça sosyal istenirlik etkilerinin artıp artmadığını incelemek. İlk iki amaca odaklanmak için 386 Hacettepe Üniversitesi öğrencisinden 2×2×2'lik bir deney tasarımıyla çevrimiçi anket verisi toplanmıştır. Üçüncü amacın analizini desteklemek için ayrıca 2012 Arjantin Küresel Okul Temelli Öğrenci Sağlık Anketi'nin verilerinden yararlanılmıştır. 2012 Arjantin anketinin örneklem büyüklüğü 28,368' tir.

Tezin sonuçlarına göre, tez konusunu hassas bulan katılımcıların sistematik olarak sosyal istenirliği olan yanıtları seçme eğiliminin görece daha fazla olduğu, ancak anket konusunun ve anketi yaptıran kişi/kuruluşun herhangi bir etkisinin olmadığı görülmüştür. İlgi çekici bir şekilde, anket tanıtımını daha ilginç bulan katılımcıların sosyal istenirliğe yönelik eğilimlerinin de daha yüksek olduğu görülmüştür. Yanıt seçeneği sırasının etkisi istatistiksel olarak anlamlı bulunmuştur ve sosyal olarak istenen yanıt kategorileri üst sırada oldukları zaman daha yoğun biçimde seçilmişlerdir. Ayrıca, anket sorularının hassaslığı arttıkça sosyal olarak istenen yanıtların seçimi yoğunlaşmıştır ve ayrıca daha fazla eksik veri sağlayan katılımcıların sosyal olarak istenen yönde yanıt verme olasılıkları daha yüksek bulunmuştur.

**Anahtar kelimeler:** Sosyal istenirlik, Anket konusu, anketi destekleyen kuruluş, anket tanıtımına duyulan ilgi, algılanan anket konusu hassaslığı, soru hassaslığı, kendi kendine uygulanan anketler

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## **ABBREVIATIONS**

|            |                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------|
| ACSI       | Audio Computer-Assisted Self-Interview                                                            |
| ANOVA      | Analysis of Variance                                                                              |
| CDC        | Centers for Disease Control                                                                       |
| COVID-19   | Coronavirus Disease 2019                                                                          |
| df         | Degrees of Freedom                                                                                |
| GPA        | Grade Point Average                                                                               |
| HUIPS DSRM | Hacettepe University Institute of Population Studies Department<br>of Social Research Methodology |
| INR        | Item Nonresponse Rate                                                                             |
| IVR        | Interactive Voice Response                                                                        |
| M-C        | Marlowe-Crowne                                                                                    |
| SD         | Social Desirability                                                                               |
| SDAs       | Socially Desirable Answers                                                                        |
| SDR        | Socially Desirable Responding                                                                     |
| SPSS       | Statistical Package for the Social Sciences                                                       |
| WHO        | World Health Organization                                                                         |

## **CHAPTER 1. INTRODUCTION**

### **1.1. Background**

Social desirability bias (also socially desirable responding, abbreviated as SDR) is the tendency of some respondents to respond to survey questions in a way they consider to be socially desirable (Lavrakas, 2008). Some respondents may seek to appear good to interviewers and give answers they consider to be socially favorable. Hence, respondents may give answers to survey questions in accordance with the perceived desirability.

SDR is a classical response error in social research that could represent a serious measurement error concern in survey research, of its ability to influence the survey results (N. Bradburn et al., 2004; Ganster et al., 1983; Larson, 2019; Mortel, 2008; Paulhus, 1986; Phillips & Clancy, 1972; Stocké & Hunkler, 2007). The research on SDR first emerged in the field of personality research (Edwards, 1957) and was a subject of debate and controversy. Some considered SDR a stable personality characteristic and others deemed it an item (statement or question) trait (Ghei, 1973; Helmes, 2000), but overall, it has been shown that some topics are more likely to trigger SDR and some individuals have a higher tendency to respond in a socially desirable manner.

The SDR concept appears to contain two aspects “that some things are good, and others are bad” (DeMaio, 1984, p: 258). In survey research, SDR is the predisposition of some respondents to give socially desirable answers and avoid socially undesirable answers (Krumpal, 2013; Lavrakas, 2008). This tendency results in over-reporting desirable behaviors or attitudes and underreporting undesirable behaviors or attitudes.

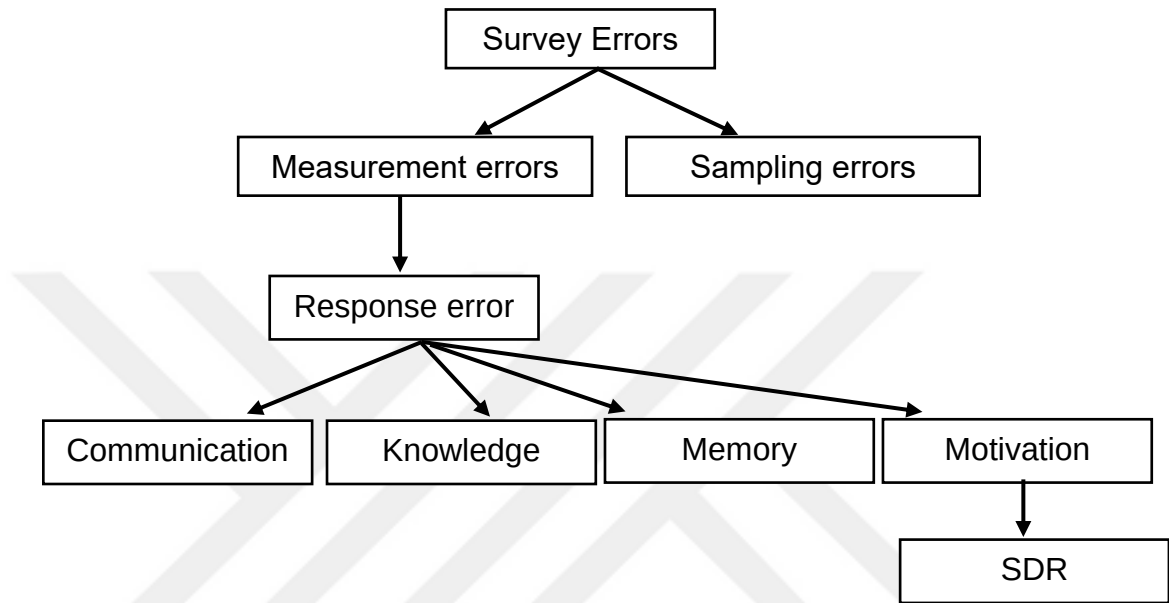
From a survey error perspective, SDR is a type of response error (Biemer & Lyberg, 2003; Converse, 2009; Groves, Floyd J. Fowler, et al., 2004) and response errors occur when the reported value deviates from its true value (Marquis et al., 1981).

Response errors can be categorized into errors related to memory, communication, knowledge, and motivation (N. Bradburn et al., 2004). Also, response errors could be either random or systematic (bias in survey methodology terminology). SDR is a motivated bias that could be conscious or unconscious (Paulhus, 1984) as illustrated in Figure 1.1. Response biases increase the likelihood that survey estimates deviate from their true values. Literature provides evidence that respondents over-report socially desirable behaviors, such as physical activity (Lichtman et al., 1992), library card ownership, seat belt use, reading, charitable giving, voting (N. Bradburn et al., 2004), GPA (Caskie et al., 2014), and underreport undesirable behaviors like alcohol use (Ernhart et al., 1988; Stockwell et al., 2004), illegal drug use (Bone et al., 2016), and certain sexual behaviors (Kelly et al., 2013; Tourangeau & Smith, 1996).

Traditionally, SDR is pronounced when asked questions that trigger culturally sensitive perceptions, such as sexual behavior and illegal drug use (Tourangeau & Yan, 2007). However, ample evidence from various scientific disciplines indicates that SDR infiltrates reports of well-being (Brajša-Žganec et al., 2011), physical activity (Brenner & DeLamater, 2014), business ethics (Dalton & Ortegren, 2011), voting turnout and behavior (Gonzalez-Ocantos et al., 2012; Holbrook & Krosnick, 2010; Liao, 2016) charitable giving (Lee & Woodliffe, 2010), intimate partner violence and relationship satisfaction (Visschers et al., 2015), immigration attitudes (Janus, 2010; Knoll & Knoll, 2013), attitudes towards a female and black president in America (Heerwig & McCabe, 2009; Streb et al., 2008), and racial stereotypes (Weber et al., 2014), to mention a few. This suggests that many topics on which data are collected could be subject to a substantial degree of the tendency to SDR.



Figure 1.1 Illustration of SDR from a Survey Error Perspective



Note. A detailed discussion of survey errors can be found in (Groves et al., 2009)

The research on SDR in survey methodology mainly focuses on mode differences (Biemer & Lyberg, 2003; Booth-Kewley et al., 2007; Dodou & De Winter, 2014; Kelly et al., 2013; Kreuter et al., 2008; Lautenschlager & Flaherty, 1990; Richman et al., 1999) and the effect of SDR is documented in all modes of data collection (Dodou & De Winter, 2014; Kreuter et al., 2008; Mortel, 2008; Näher & Krumpal, 2012; Persson & Solevid, 2014; Stöber et al., 2002). Compared to anonymous self-administered modes of data collection, the tendency to SDR heightens in personal interviews because respondents may seek to appear good in the eyes of the interviewer. (Richman et al., 1999; Schwarz et al., 2008). Nonetheless, despite self-administered modes being anonymous and providing a higher degree of privacy, SDR is observed in self-administered modes of data collection as well (Krumpal, 2013). Unlike the interviewer-assisted modes in which the interviewer is the primary factor of SDR, the mechanisms behind SDR in self-administered modes are not fully understood.

Research shows that SDR could result from survey features, such as the mode of data collection. However, from a methodological perspective, little attention has been given to whether survey attributes like survey topic and sponsor result in the tendency to SDR in self-administered surveys (handed over, mailed, or sent via the internet). To enrich the literature on SDR in a self-administered setting, this dissertation seeks to provide insights into the ways that survey attributes may influence the tendency to SDR in self-administered surveys.

In this dissertation, I examined three groups of theoretically-driven survey attributes that could trigger SDR in self-administered surveys. First, previous research in survey methodology indicates that survey attributes like the survey topic and sponsor affect survey participation and data quality (Groves, Presser, et al., 2004; Keusch, 2013; Charles L Martin, 1994). Also, experimental survey research shows that the order in which response options are presented affects the distribution of response options (Garbarski et al., 2015; Schwarz & Hippler, 1990). SDR is also considered to be related to sensitive behaviors (Tourangeau & Yan, 2007). Drawing on this literature, the dissertation aims to empirically test the effects of survey introduction interest<sup>4</sup> (respondent's overall interest in the survey after s/he exposed to the survey introductory statement), survey topic, sponsor, perceived topic sensitivity, response-order, and item-related sensitivity on SDR across a range of items in self-administered surveys.

## **1.2. The Significance of the Study**

The present study is significant in these ways: First, as I highlighted in the previous paragraphs, there is a need to understand the factors that contribute to the tendency to SDR in self-administered surveys. The present research primarily enriches the research on self-administered surveys, and in particular, gaining a better understanding of whether survey

---

<sup>4</sup> A detailed discussion of the introduction interest term is available in Chapter 2 (proposed conceptual framework section 2.6).

attributes (such as introduction interest, survey topic, perceived topic sensitivity, sponsor, and item-related sensitivity) result in SDR in self-administered surveys. Second, the study has also theoretical importance as it extends the principles of leverage-salience theory (as explained in detail in Chapter 2 section 2.6) on response behavior (Groves et al., 2000), in particular, the tendency to SDR in the self-administered surveys. Finally, the study provides insights into how response-order effects interact with the tendency to SDR in self-administered surveys.

### **1.3. Research Question and Objectives**

The dissertation seeks answers to the research question, from a methodological point of view, in what ways do survey attributes influence the tendency to SDR in self-administered surveys?

Based on the above research question, the specific objectives of this dissertation are threefold:

1. To examine whether survey topic, survey sponsor, perceived topic sensitivity, and introduction interest prompt a systematic tendency to SDR in an online self-administered survey.
2. To investigate whether the serial position of socially desirable answers on the response list precipitates the tendency to SDR.
3. To examine whether the increment of the item-related sensitivity prompts the tendency to SDR.

To achieve the first two objectives, the dissertation takes advantage of primary data collected through an online survey experiment in which the Hacettepe University students participated with an achieved sample size of 386. To attain the third objective, the dissertation uses a combination of primary and secondary data from the 2012

Argentina<sup>5</sup> Global school-Based Students Health Survey (GSHS). The 2012 Argentina GSHS includes topics that are deemed sensitive in survey literature and collects data on intermediate and secondary students with a sample size of 28,368.

This dissertation comprises five chapters. In the first chapter, I presented the overall background of the dissertation topic, the significance of the study, the proposed research question, and the objectives. In Chapter 2, I summarized the literature on SDR, response-order effects, the interface between SDR and response-order, how SDR is related to sensitivity, and finally, the proposed conceptual framework and underpinning theoretical arguments. In Chapter 3, I presented the sources of the data and the related methodological procedures. In chapter 4, I tested the proposed hypotheses and presented the results. In chapter 5, I summarized the results and discussed the theoretical and practical implications that emerged from the results. Throughout this dissertation, I used SDR to denote socially desirable responding and SDAs to indicate socially desirable answers.

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<sup>5</sup> Detailed information about the data and related methodological aspects is in Chapter 3.



## **CHAPTER 2. LITERATURE REVIEW**

### **2.1. Overview**

In this chapter, I presented literature on the concept of socially desirable responding (SDR), its development, determinants, whether it differs across modes of data collection, how respondents arrive at the tendency to SDR, and its effects on survey data. Then, I presented literature on response-order effects and the interface between SDR, the response-order effects, and perceived sensitivity. This follows by literature on question sensitivity in survey research and how sensitivity is related to SDR. Finally, I presented the proposed conceptual model, the hypothesized relationships, and underpinning theoretical arguments.

### **2.2. Literature on Socially Desirable Responding**

In survey research, many forms of error occur during the response process. For instance, due to the length of the questionnaire, the respondent may be fatigued and as a result, might give answers without spending sufficient cognitive effort. Moreover, in self-administered questionnaires, the order in which the response categories are presented might make a specific response category more likely to be chosen by the respondent. Also, the wording of the question might lead the respondent to give a specific answer. Additionally, the respondent may tend to edit the response before reporting to create a good impression or fear of repercussions (Lavrakas, 2008). These and other errors that occur during the response process could deviate the answer from its true value.

The latter situation, where the respondent edits the answer to make a good impression is termed socially desirable responding (SDR) (Paulhus & Reid, 1991). SDR is considered to be a motivation-related error where the respondent either consciously (impression management) or unconsciously (self-deceptive enhancement) edits the

response (Paulhus, 1984). Paulhus describes SDR “the tendency to give answers that make the respondent look good.” (Paulhus 1991, p. 17). The “good” might hint at a higher tendency to attribute to oneself positive descriptions and disassociate the negative descriptions. Also, this could be interpreted as the eagerness of individuals to attribute to themselves the qualities, behaviors, and attitudes they consider to be desirable in their communities.

As individuals can fake good or bad, SDR occurs when individuals tend to fake good either by claiming favorable behaviors, attitudes, or descriptions or by denying unfavorable aspects of themselves. On the other hand, claiming undesirable attributes is improbable compared to desirable ones. However, Edwards (1957) pointed out that it is likely when it works for the advantage of the individual.

SDR has resulted in increased concern among social researchers (Ganster et al., 1983; Larson, 2019; Mortel, 2008) due to its serious infiltration into the data. As a result, a great deal of research has been directed at SDR which makes it the most researched response error (Paulhus, 1991; Watkins & Cheung, 1995). Despite this, SDR lacks a unified conceptualization and is interpreted in various ways, such as the need for social approval (Crowne & Marlowe, 1960), faking good (Furnham, 1986), and presenting oneself in a positive light (Hays et al., 1989), effort to make a good impression (Christopher L. Martin & Nagao, 1989). This might be because many disciplines that exploit survey research as a tool of data collection address the SDR bias. However, the previous literature reviews (DeMaio, 1984; Furnham, 1986; Nederhof, 1985) underlined that the definitions presented for SDR are unspecific and the blurred conceptualization of the SDR term may emanate from the other concepts that SDR is closely linked to, such as social norms and values that are vague on their own ( see, DeMaio, 1984).

### **2.2.1. What is a Socially Desirable Response?**

In the literature, what could be a socially desirable response was not addressed enough. However, a socially desirable response might be an answer that the respondent views to be in line with the prevailing standards of the society. That said, clear boundaries do not exist between what could be a socially desirable or undesirable answer. The desirability or undesirability of a certain attribute or behavior might be influenced by individual, situational, and cultural differences. A behavior judged to be socially desirable may not be desirable in another situation or could be undesirable to another group of people. According to Edwards (1957, p. 39), a desirable response is “the endorsement of an item with socially desirable scale value or the rejection of one with a socially undesirable scale value”. In psychology terminology, an item can be either a statement or a question. A statement may be judged as socially desirable or undesirable, but a question may or may not trigger SDR.

In practice, researchers turn to respondents and peer researchers to determine what could be socially desirable or undesirable. For instance, Edwards (1957) distributed personality inventory statements drawn from the Minnesota Multiphasic Personality Inventory (MMPI) to groups of students to judge them as socially desirable or undesirable. Thereafter, he administered the same statements to other groups of students to examine how they ascribe the statements to self-description. Also, Sudman & Bradburn (1974, p. 43) asked data coders to rate the desirability of response categories. They instructed the coders to code strong possibilities for questions that could greatly trigger a socially desirable response.

The posed question itself could make some answers appear socially desirable and others undesirable. As an example from the questionnaire used in this dissertation, when asked “During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not?” compared to “Yes” response category, most



respondents may find the “No” response socially desirable as it agrees with social norms and standards.

Bradburn et al. (1978) highlighted that two forms of questions could make respondents distort their answers: (1) questions that cause anxiety, such as questions that ask about drug use, and (2) questions that ask about highly desirable behavior, such as voting. Therefore, to judge whether an answer is socially desirable or undesirable is probably contingent on whether the posed question is addressing a socially prescriptive or proscriptive topic. For example, respondents tend to over-report religious attendance (Hadaway et al., 1998; Presser & Stinson, 1998), hand washing (Contzen et al., 2015), the use of seat belts (Dean et al., 1995), and voting (Belli et al., 2001; Grafstein, 2005; Holbrook & Krosnick, 2010; Persson & Solevid, 2014; Silver et al., 1986), while they underreport abortion (Fu et al., 1998; E. F. Jones & Forrest, 1992; R. K. Jones & Kost, 2007; Saraç & Koç, 2019; Udry et al., 1996). illegal drug use (Mcallister & Makkai, 1991; Morral et al., 2000; Palamar et al., 2020; Single et al., 1975), and alcohol consumption (Ernhart et al., 1988; Livingston & Callinan, 2015; Morrow-Tlucak et al., 1989; Stockwell et al., 2004), also, successive population-based surveys in Italy indicate increased trends of under-reporting of cigarette consumption (Gallus et al., 2011).

Finally, research shows that the desirability or undesirability of an attitude or behavior could be similar across cultures. A cross-cultural study by Ghei (1973) compared the ratings of the desirability of 42 personality statements rated by two groups of college students from India and the United States. The ratings were found to be similar. A similar study by S. T. Smith et al. (1993) compared American students and Turkish students in terms of describing themselves in a socially desirable manner. The researchers found that Turkish students are inclined to describe themselves in a socially desirable manner as much as American students. In another study that included ten countries (Chile, China, Korea, Nigeria, Norway, Pakistan, Portugal, Singapore, Turkey, and the United States),

Williams et al. (2002) addressed favorability<sup>6</sup> which is a closely related concept to desirability. In this study, students from these countries were asked to rate the favorability of items from the adjective checklist<sup>7</sup>. On average, the cross-country correlation of the ratings was 0.82. In sum, considering the posed question, a socially desirable answer is expected to be accordant with the prevailing social standards.

### **2.2.2. SDR Dimensions**

Research in the second half of the 20<sup>th</sup> century has repeatedly shown that SDR has two dimensions. And ever since Crowne & Marlowe (1960) proposed their scale for the measurement of SDR, there has been a controversy about whether the scale exactly measures SDR. Jacobson & Ford (1966) indicated that SDR represents “approach orientation” (need for social approval as coined by Marlowe-Crowne) and “avoidance orientation” (defensiveness). In a similar fashion, Millham (1974) demonstrated that the scale developed by Crowne & Marlowe (1960) for the measurement of SDR contains two sub-scales measuring two interrelated aspects of the need for approval, namely, attribution to claim positive traits and denial to disclaim negative ones. This assumption was also endorsed by Ramanaiah et al. (1977) who demonstrated that these two components are relatively independent. Later, Paulhus (1984) conceptualized that SDR consisted of two components and presented the Balanced Inventory of Desirable Responding (BIDR), which separately measures the two components of SDR, termed “self-deceptive enhancement” and “impression management”. The core distinction between the two dimensions is the level of consciousness. The former is an unconscious tendency, while the latter is a deliberate tendency to present oneself in a positive light. Both forms could be observed in the different modes of data collection.

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<sup>6</sup> According to APA dictionary favorability is “positive appraisal and acceptance of someone or something (a behavior, trait, attribute, or the like) by a social group”

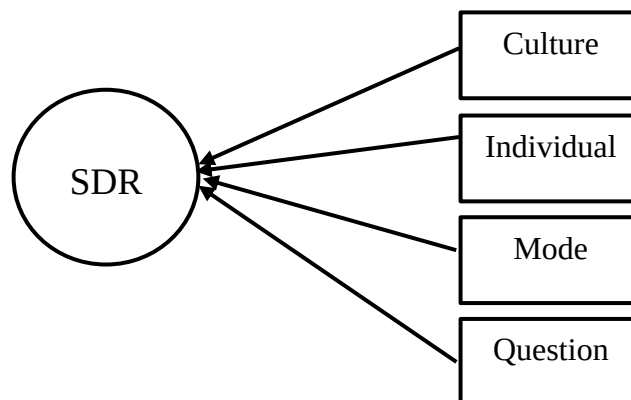
<sup>7</sup> Adjective checklist abbreviated as ACL is a psychological assessment that includes 300 items used to recognize psychological traits.

In a subsequent synthesis, Paulhus (2002) pointed out that both forms of SDR could be conscious or unconscious. Furthermore, he presented a two-tier approach to SDR: “Egoistic bias” and “moralistic bias”, where each can be measured separately. Egoistic bias is when individuals tend to exaggerate their qualities and abilities while moralistic bias is the tendency to conform to social standards and rules. The egoistic bias branches out into “self-deceptive enhancement” (unconscious) and “agency management” (conscious), while moralistic bias splits up into “self-deceptive denial” (unconscious) and “communion management” (conscious).

### 2.2.3. Determinants of SDR

In general, four main factors determine whether a respondent would respond in a socially desirable way. These include culture, individual, mode of data collection, and the question being asked (Lavrakas, 2008) as illustrated in figure 2.1. A detailed discussion of these factors is in the sections that follow.

Figure 2.1. Determinants of SDR



#### 2.2.3.1. Culture

According to cross-cultural research, SDR appears to be a universal concept. However, the presence of culture-specific factors cannot be ruled out (Johnson & Vijver, 2003; Middleton & Jones, 2000) For instance, as reported by the Gallup 2020 Global

Emotions Report, Latin American Countries are leading global positive daily experiences, such as feeling well-rested, treated with respect, laugh or smile, etc. In these countries, there is a cultural tendency to focus on the positive aspects of life (Gallup, 2020).

In a study on housing and family planning in the Netherlands, the responses of young Turkish respondents differed by the interviewer's background. They reported large families and lower use of contraceptives when interviewed by Turkish interviewers whereas they reported small families and higher use of contraceptives when interviewed by Dutch interviewers (Lensvelt-Mulders, 2008 cited in CBS, 2005). In this instance, respondents might have responded in a socially desirable manner by reporting attitudes in line with the cultural background of the interviewer. This suggests that the answers given to survey questions are not free from cultural influence.

A number of cross-cultural studies summarized by Johnson & Vijver (2003) indicated that respondents from collectivist cultures are more predisposed to the tendency to SDR compared to respondents from individualist cultures, also respondents from developed countries showed a lower tendency to SDR compared to those from less developed countries. Groups with low power, such as immigrants are said to be more susceptible to SDR as well.

#### **2.2.3.2. SDR as a Respondent Characteristic**

A much-debated question is whether SDR is a stable individual characteristic or is item-content-related. In this regard, some pioneers in the research on SDR (Crowne, 1991; Edwards, 1957) suggested that SDR is a personality construct and proposed scales to measure the tendency of the respondent to respond in a socially desirable way. To a lesser degree, Cronbach (1950) highlighted that SDR tends to be relatively stable while Paulhus, (2002, p.49) considers SDR as both an individual and item-related trait.

Mixed results exist in whether specific respondents are more susceptible to SDR than others. Some studies report that older respondents score higher on the SDR scale compared to younger respondents (Deshields et al., 1995; Soubelet & Salthouse, 2011; Stöber, 2001; Vigil-Colet et al., 2013). In this regard, Nederhof (1985 cited in Stocking, 1979), older people score high because older people tend to not engage in socially undesirable activities. Also, Dijkstra et al (2001) cast doubts about the positive association between the tendency to SDR and age. They argue that if education and the information retrieval ability from memory are controlled for, the relationship between SDR and age weakens.

Deshields et al. (1995) reported a negative correlation between education and SDR. Concerning whether gender differences do exist, Hebert et al. (1997) indicated that SDR varies by gender in dietary self-report, and women with high SDR scores underestimated fat and energy intake. More recently, in a validation study, Caskie et al. (2014), indicated that women with low GPAs tended more to over-report their GPAs compared to men with low GPAs.

However, in a specific survey topic, it is worth highlighting that some respondents might be more likely to respond in a socially desirable way than others depending on their involvement in the topic. For example, it has been indicated that respondents who tend to over-report voting are those who have greater political interest (Granberg & Sören Holmberg, 1991; Karp & Brockington, 2005) and have a greater propensity to vote (Panagopoulos, 2010). In such situations, the tendency to SDR could be a respondent attribute.

#### **2.2.3.3. Mode of Data Collection**

Modes of data collection differ in ways of administration and communication with the respondents. Many methodological studies investigated whether SDR differs by the

mode of data collection. Comparing anonymous situations (self-administered modes) to interviewer-administered modes, respondents have a higher tendency to SDR in interviewer-assisted modes (Burruss & Johnson, 2021; de Leeuw, 2008; Krysan, 1998; Richman et al., 1999). The presence of an interviewer may ignite the need for social approval, respondents may try to avoid embarrassment and tend to respond in a socially desirable manner (Biemer & Lyberg, 2003; Groves et al., 2009). By contrast, self-completion modes tend to reduce SDR tendencies as they provide higher levels of anonymity and privacy (N. M. Bradburn, 1983; Durant et al., 2002; Joinson, 1999; Robertson et al., 2018) but may not necessarily eradicate the tendency to SDR (Lee & Woodliffe, 2010).

Among interviewer-administered modes, there is contradictory evidence of whether SDR is higher in telephone or face-to-face interviews as several studies summarized by Groves et al. (2009) show. For example, studies by Edith D. de Leeuw, (2008); and Vogl (2013) indicate that respondents demonstrate less tendency to SDR in telephone interviewing compared to face-to-face interviews, but the difference seems to be small. Contrarily, Holbrook et al. (2003) compared face-to-face and telephone interviewing modes with regard to the differences in two sources of response error: satisficing and social desirability. In their study, they reviewed first the results of many previous studies that compared face-to-face and telephone interviews and indicated that previous studies have methodological limitations and could not provide social desirability and satisficing differences in face-to-face and telephone interviews. Then, they carried out an analysis based on USA national probability samples. Their findings indicated that satisficing and SDR tendencies were greater in telephone respondents than in face-to-face respondents. This is because respondents in telephone interviewing are probably less motivated to produce optimal answers.

As regards computer-assisted telephone interviews (CATI), respondents are less likely to report undesirable information compared to interactive voice response (IVR) and web-based questionnaires (Kreuter et al., 2008).

Also, it is not clear whether respondents show a high or low SDR tendency in computer-assisted modes compared to traditional paper-based modes. Lautenschlager & Flaherty (1990) investigated the effect of computer and paper-and-pencil administration on two components of SDR, namely, self-deception and impression management. They demonstrated that the computer-assisted mode produced greater impression management levels compared to paper-and-pencil. However, Booth-Kewley et al. (1992) and Fox & Schwartz (2002) failed to find systematic differences in SDR between computer-assisted and paper-and-pencil modes. In a later study, Booth-Kewley et al. (2007) found higher scores of self-deceptive enhancement in computer mode and no differences in impression management. In a closely related context, a meta-analysis study by Gnambs & Kaspar (2015) revealed that computer-based modes tend to produce higher rates of sensitive behaviors, such as sexual behaviors and illegal drug use compared to paper-based modes. Richman et al. (1999) also reported that computer-based modes tend to elicit less tendency to SDR compared to the traditional paper-based modes. In reporting sexual behavior, Kelly et al. (2013) demonstrated an increased tendency to SDR in paper-based face-to-face mode compared to computer-assisted modes, such as audio computer-assisted self-interviewing (ACASI).

In summary, these various findings draw together that SDR differs in anonymous and interviewer-assisted, computer-assisted, and paper-based modes, but might not differ that much, as results from a meta-analysis study by Dodou & De Winter (2014) indicated. The effect of administration mode on the tendency to SDR was almost zero and researchers pointed out that SDR may not differ in offline, online, and paper surveys.

#### **2.2.3.4. SDR as an Item Trait**

In survey research, SDR appears to be an item-related trait because research shows that some behaviors or attitudes seem to be more or less socially desirable. For example, the greater the cultural sensitivity that a particular question evokes, the greater the respondent may respond in a socially desirable manner (Sudman & Bradburn, 1974). Questions that ask about sexual behavior, drug use, and alcohol tend to produce higher levels of socially desirable responding. Also, job-related questions are prone to SDR where job applicants might seek to exaggerate their qualifications and skills (Birkeland et al., 2006; Donovan et al., 2003).

In personality research, Edwards (1957) indicated that the probability to endorse a statement, that is, the probability a subject answers “Yes”, “True”, or “Agree” for a given self-description statement is a function of its perceived social desirability. More recently, in a closely related study in this regard, Andersen & Mayerl (2019) indicated that SDR could be automatic or intentional but what determines SDR to be automatic or intentional is whether the item content is socially desirable or undesirable.

#### **2.2.4. SDR and Survey Response Process**

It has been suggested that respondents go through a four-stage cognitive process to answer survey questions (Groves et al., 2009) as illustrated in Figure 2.2. In the first stage, the respondent comprehends the posed question and interprets its different components, and connects them to fully understand the meaning that the question conveys. To better interpret the question, in a self-administered questionnaire, the respondent might use the nearby other questions and response alternatives. In the interviewer-assisted face-to-face modes, the respondent may read the facial expressions of the interviewer.

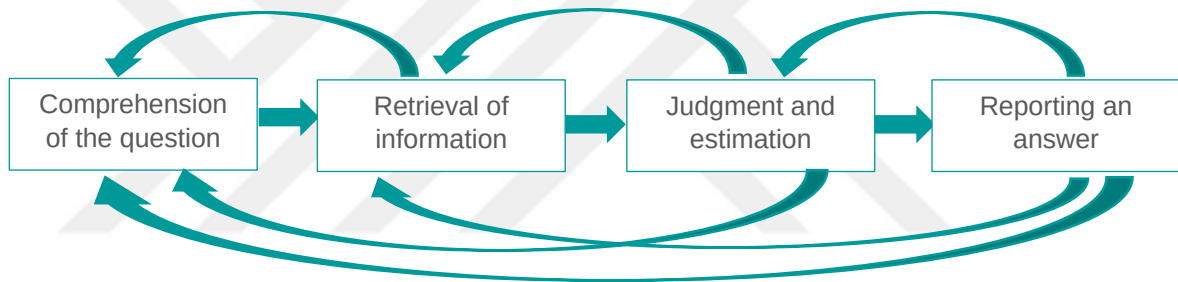
After the comprehension step, the respondent starts a retrieval process in which the respondent recalls the related information. A better recall of the needed information



from the memory depends on the available retrieval cues, the nature of the event being asked, and the period that has elapsed since the event occurred.

In the third stage, the respondent estimates and judges the retrieved information according to the question posed. The information that a respondent recalls might be an estimation, not exactly how the event occurred, or it could be a preexisting answer. Finally, the respondent reports the information in the required format.

Figure 2.2. Survey Response Process



Source: (Groves, Floyd J. Fowler, et al., 2004)

It is important to highlight that in open-ended questions, the respondent performs free recall and in closed-ended questions, performs task recognition (the respondent merely identifies the answer rather than remembering) (Hans-J. Hippler et al., 1987; Schwarz & Hippler, 1990). In a self-administered questionnaire, before the respondent embarks on the four-step cognitive procedure, s/he performs an extra step called perception where the respondent learns the instructions and how to complete the questionnaire (Jenkins & Dillman, 1997).

Various forms of measurement error are possible in each of these stages. For instance, the respondent may misinterpret the question or face difficulty in retrieving the needed information. The errors that may occur in the first three stages are considered unintentional errors (Johnson & Vijver, 2003). In the final stage, SDR may interfere and before reporting the answer, the respondent encounters a conflict of whether to respond

truthfully or to resort to SDR (Sudman & Bradburn, 1974). The respondent might deliberately edit the response in a way that s/he considers being socially desirable. The tendency to SDR occurs when the context effects influence the last stage of the question-and-answer process (Sudman et al., 1996).

#### **2.2.5. Effects of Socially Desirable Responding**

Few studies elaborated on how and to what extent SDR influences survey results. For instance, Phillips & Clancy (1970) highlighted that individuals' evaluations of the social desirability of the inventory items correlated both to their economic position and their reports of whether or not they have psychiatric symptoms. However, the researchers indicated that SDR bias did not influence the relationship between economic position and psychiatric disorder. In a later study, Derek L. Phillips & Clancy (1972) examined the effects of two forms of SDR, SDR as an item trait and the need for social approval. The researchers investigated the degree to which these two forms influence people's answers to some sociological measures. The researchers found that both forms correlated the dependent variables (such as happiness and religiosity etc.) and trait desirability correlated with gender which affected the strength and direction of the relationship between gender and other variables.

Probably the most compelling elaboration on how SDR influences survey data comes from Ganster et al. (1983) who proposed three ways in which SDR could influence research results. Firstly, it is postulated that SDR leads to spurious relationships, that is, SDR scores could be related to both the dependent and independent variables. This could be solved by partialling out the SDR effects. Secondly, SDR acts the opposite of the first situation and suppresses the relationship between variables, that is, it makes the relationship between variables undetectable. Finally, SDR acts as a moderator variable and may or may not be correlated with the independent or dependent variable. A characteristic of the last situation is that there is an interaction effect between SDR and

the independent variable, and to determine whether SDR acts as a moderator variable, one may test any interaction between SDR and all independent variables.

Ganster et al. (1983) pointed out that SDR mostly appears in the form of a moderator variable. Fernandes & Randall (1992) reported results endorsing this latter suggestion. They detected SDR effects under various conditions and indicated that it acts as a moderator variable. Contrarily, a simulation study by Paunonen & LeBel (2012) failed to find SDR effects as a moderator variable, and also a meta-analysis by McGrath et al (2010) revealed little support for SDR effects as a moderator variable.

In psychology research, SDR was shown to inflate the correlations between the big five<sup>8</sup> (Pauls & Crost, 2005), and to affect the mean scores of scales (Pauls & Crost, 2005; Viswesvaran & Ones, 1999). More recently, Larson (2019) provided two examples illustrating how SDR could influence demographic variables and regression coefficients. Larson provided two examples to illustrate how SDR affects results in surveys. In the first example, the dependent variable was “whether a respondent reported at least monthly attendance at organized religious activities.” Larson run a regression model that included the demographic variables (gender, race, age, marital status, presence of children, and income. Three background variables were significant and respondents who were aged 55-65 years old, had children in the household, and had a 4-year college degree were more likely to attend a religious activity at least once per month. When the SDR scale sum scores variable was introduced to the model, the magnitude of the age coefficient reduced and moved from 0.447 to 0.395 and became insignificant as well. On the other hand, the marital status coefficient magnitude increased from 0.360 to 0.460 and became significant at 0.05. In the second example, the dependent variable was the answer to “I consider the potential environmental impact of my actions when making many of my decisions.” Larson, (2019) run a regression analysis on environmental concerns. When the SDR scale

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<sup>8</sup> In personality psychology, the five main personality dimensions are extraversion, openness, agreeableness, conscientiousness, and neuroticism.

sum scores variable was introduced to the model, the education variable became significant at 0.05. These two examples show that SDR could influence the relationship between sociodemographic variables and other survey variables.

In a nutshell, it has been shown that SDR can affect survey results. For example, studies by Larson (2019) and Phillips & Clancy (1970, 1972) confirm that SDR is closely associated with demographic variables and subsequently could influence the relationship between demographic variables and other variables of interest.

#### **2.2.6. Prevention and Detection of SDR**

There is a wide range of precautionary techniques to ward off the SDR effects. The use of anonymous modes of data collection provides high levels of anonymity and privacy and is on top of the precautionary techniques used. One of the earliest techniques proposed to tackle SDR is the forced-choice items technique. The respondent is asked to choose between two items or questions that have an equivalent degree of social desirability. The assumption is that the respondent's selection may not be influenced by the item's desirability. Even so, item desirability varies among individuals, and also two items may not have the same degree of perceived desirability. Another proposed solution is posing neutral questions, but this technique suffers from the same problem as the forced-choice items, as questions may not seem neutral to everyone.

The randomized response technique (Himmelfarb & Lickteig, 1982; S. L. Warner, 1965) and the bogus pipeline (E. E. Jones & Sigall, 1971) are preventive techniques intended to reduce SDR effects. The former allows respondents to answer either one of two randomly presented questions. The randomized response technique was widely used for personal and sensitive questions but may not be applicable anymore while the bogus pipeline is a pseudo lie detector, that is, researchers make respondents believe that the interviewer or the researcher can determine whether the respondents are reporting true

responses (Lavrakas, 2008). They do so using different ways, such as polygraph-like devices. However, its application is complex and might not be applicable as well.

Proxy subjects are also a suggested technique to overcome social desirability effects, where questions are posed to another person who knows well the designated respondent rather than asking the respondent her/himself. The effectiveness and applicability of all these techniques are limited (Nederhof, 1985). More practical techniques include adding a question introduction that normalizes the behavior under study (Keeter et al., 2002).

To control SDR effects after the data collection, an SDR scale may be incorporated into the measurement process to be used later on to detect and control its effects in the analysis stage. In this regard, there are many scales including the SDR scale which contained 39 items from the Minnesota multiphasic personality inventory (MMPI) (Edwards, 1957). The majority of the items are keyed negatively and individuals' scores range between 0 and 39. A high score hints at a tendency to SDR and a low score shows no tendency to SDR. The main limitation of the Edwards' SD scale is that it contained items that overlapped measures of anxiety and depression (Paulhus, 1991). The MMPI lie scale contains 15 items about common undesirable practices and attitudes and is also used to detect SDR. Scores above 8 show a tendency to SDR.

The Marlowe-Crowne SDR scale (Crowne & Marlowe, 1960) is the widely used scale to control and measure SDR effects. It comprises 33 true-false keyed items about rare desirable behaviors and frequent undesirable behaviors. The Marlowe-Crowne SDR scale simultaneously measures both dimensions of SDR, primarily the impression management dimension.

The balanced inventory of desirable responding scale (BIDR) is another SDR scale that is also frequently used and separately measures the two dimensions (self-deception and impression management). Finally, the SDR-17 scale which is proposed by Stöber

(2001) consists of 17 items, and only 16 items are used because the 4<sup>th</sup> item is addressing illegal drug use and is rarely included.

Most of the scales discussed here are quite lengthy and their incorporation into survey questionnaires is not practical as they could increase the respondent burden and reduce response rates. As a result, short-versions of the scales were suggested, such as the short-versions (7, 10, and 13-item) of the Marlowe-Crowne scale (see Fischer & Fick, 1993). Another challenge is the incorporation procedure, whether to present items successively or scattered in the questionnaire. If respondents understand the intention behind the scale items, respondents may become critical and this may negatively affect the subsequent questions (Dijkstra et al., 2001). In this matter, Nederhof (1985) suggested that if SDR is considered a stable tendency across time, items should be presented sequentially. Otherwise, items should be scattered. In the present dissertation, the first approach was adopted and items were presented sequentially.

### **2.3. Literature on Response-Order Effects**

The response-order effect was a well-known issue to researchers since the mid-20<sup>th</sup> century. For instance, Payne (1951) highlighted that respondents have a predisposition to choose the middle response alternatives and avoid the extreme response categories. In psychology research, Asch (1946) and Kelley (1950) noted that the order in which personality traits are presented influences respondents' impressions of the items.

The two main response-order effects that have been widely documented are primacy and recency effects. The primacy effect refers to the tendency of choosing the response options at the top of the response list. It frequently occurs in self-completion questionnaires that contain questions with a long list of response categories. To exemplify, a respondent finds the first response category reasonable and hence selects it rather than considering the entire response list. In contrast, the recency effect gives higher chances to be chosen the response alternatives that come last on the response list. This occurs often

when the response list is presented aurally, i.e. when an interviewer reads the response list aloud or they are pre-recorded in an audio file.

Depending on the medium (visual vs. aural), the first and the last response options are better remembered by respondents and often chosen because alternatives that appear first enter the long-term memory and those presented later on the response list enter the short-term memory (Krosnick, 1991a). The research on the response-order effects culminated in the 1980s and 1990s and I presented a summary of the literature addressing the primacy and recency effects in the sections that follow.

### **2.3.1. Primacy Effect**

According to Sudman et al. (1996), the primacy effect is expected more often when response alternatives are presented visually (either on a self-administered questionnaire or show-cards) compared to when presented in an auditory format. Krosnick & Alwin (1987) suggested that there could be two explanations for this: First, the response options that first appear on the response list could work as a standard comparison that drives the judgment of the subsequent response categories. Since the response alternatives presented first are driving the judgment process, the first response alternatives have a better chance to be chosen by the respondent. Second, the response options that first appear receive greater judgment and once the respondent reaches the later response options, the respondent's mind may still process the first response alternatives. As a result, the response alternatives that first come are more likely to be chosen.

Many studies confirmed the primacy effect (N. H. Anderson & Barrios, 1961; Norman H. Anderson & Hubert, 1963; Ayidiya & McClendon, 1990; Bruce & Papay, 1970; Dreben et al., 1979; Garbarski et al., 2015; Krosnick & Alwin, 1987; Mackinnon & Firth, 2018; Pratz, 1987; Rundus, 1971; Steiner & Rain, 1989; van Erkel & Thijssen, 2016).

However, the primacy effect is not restricted only to survey questions alone but occurs in other real-life situations. For instance, in voting behavior, Mueller (1970) investigated the factors that influenced a Junior College Board vote. Mueller indicated that the order in which the candidates were presented was a significant factor that influenced the number of votes a candidate could receive. But the influence was not linear but rather logarithmic. More recently, van Erkel & Thijssen (2016) found primacy effects in elections in Belgium. Also, in TV commercials, people tend to recognize and recall the commercial brands that appear first in a commercial pod (Li, 2010).

A factor that might influence primacy effects could be mood, as Forgas (2011) observed an interaction between primacy effects and psychological state (of being in a positive or negative mood). While negative moods reduced primacy effects, positive moods enforced them. This suggests that when respondents are in a negative mood, primacy effects might not be present in the subsequent judgments. This is because positive mood recruits assimilative<sup>9</sup> processing which enhances holistic inferences induced by early information while negative mood uses accommodative, stimulus-driven processing which results in balanced thought of the presented details (Forgas, 2011). Other factors that may influence the primacy effect include education and gender. Respondents with lower education levels tend to introduce a larger primacy effect (Malhotra, 2008). Also, females show a higher primacy effect compared to males (N. H. Anderson & Barrios, 1961).

In a cross-cultural study, compared to Japanese participants, American participants demonstrated a greater disposition to use initial information to judge a target person's subsequent behavior (Noguchi et al., 2014). Finally, in some situations, primacy effects may not be present as several studies failed to detect them. For instance, a recent investigation by Wiedenroth et al. (2020) could not find a primacy effect on interpersonal

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<sup>9</sup> In developmental psychology, assimilation is the process of fitting new information into the existing body of knowledge while accommodation is the process of altering existing knowledge to allow new information to fit in the existing (see Piaget's theory).



perceptions because using early information might not be plausible in situations where thorough information is readily available.

### **2.3.2. Recency Effect**

The recency effect often occurs when the response options are presented in an auditory format (Mingay & Greenwell, 1989; Sudman et al., 1996). This is because the last-mentioned response options have a better chance to be recalled than the first-mentioned options, particularly, if the presenter reads the response alternatives at a fast pace. Even in a slow-paced situation, respondents might think about the reasons why the last-mentioned response alternatives are true for them because the last-mentioned response categories stay in the short-term memory (Krosnick & Alwin, 1987).

Contrary to the expectations, in a telephone interview survey by Mingay & Greenwell (1989), the reading pace failed to affect the selection of response alternatives, and primacy effects were detected rather than recency effects. Also, studies by G. Bishop & Smith (1997, 2001) on 213 Gallup split-ballot experiments revealed that recency effects were observed more in visual formats than primacy effects. More recently, in psychiatry research, Cwik & Margraf (2017) carried out a vignette study and examined the association between the order in which psychiatric symptoms are presented and the correctness of diagnostic decisions. The authors found that the order in which psychiatric symptoms were presented influenced the correctness of diagnostic decisions. Also, contrary to their expectations, the authors detected recency effects.

In sum, the primacy effect is more likely when response alternatives are presented visually and the recency effect is when presented in an auditory format. Despite that the various studies which examined the response-order effects have differences in design, the conflicting results call for a better understanding of the forces behind the response-order effects. A detailed discussion regarding the factors behind the response-order effects is in the next section.

### **2.3.3. Mechanisms behind Response-Order Effects**

Many hypotheses have been suggested for the response-order effects. The first hypothesis suggests that question comprehension problems could be the cause. During survey interviews, questions that respondents request for repetitions hint at comprehension problems, especially amongst respondents with low education attainment and low income. Therefore, long and complex questions with long lists of response alternatives might lead to response-order effects (McClendon, 1984; Mingay & Greenwell, 1989). Respondents who have “uncrystallized” opinions are said to be more prone to response-order effects as well (Rugg & Cantril, 1941). But Bishop (1990) has shown in a meta-analysis study that question and response-order effects have no association with the respondent’s involvement in a specific topic.

Considering the number of response options, memory limitation is deemed to derive the response order effects particularly when response alternatives are read aloud to the respondents. When long response lists are presented in an auditory format, respondents might not remember all the response alternatives, but the last-mentioned ones have a better chance to be remembered. As a result, a recency effect is possible. According to Sudman et al. (1996) the memory limitation hypothesis cannot account for the primacy effect. An important factor in this memory hypothesis is the time elapsed between the presentations of the response alternatives. If there is no time gap between learning and recall, the last alternatives are candidates to be remembered. However, what is more, intriguing is that the first-presented options are more likely to be recalled than those in the middle because the first alternatives get more time and space (Sudman et al., 1996 cited in Smyth et al., 1987). Nonetheless, when there is a delay time between learning and recall, the recall of the first alternatives is better than that of the last response options, and following this, a primacy effect is expected. Having said that, in survey interviews, a recency effect is usually observed because there is not enough time between the response alternatives to allow for this delay. In sum, the memory hypothesis is a plausible explanation for the

response-order effects when a long list of response alternatives is presented in an aural format without a visual aid.

The most compelling explanation is known as the cognitive elaboration model of response-order effects by Krosnick & Alwin (1987) and Schwarz et al. (1991). These researchers propose that “the presentation mode” and “the order in which response alternatives are presented” drive the response-order effects but disagree on their implications or mediating factors. For example, Schwarz et al. (1991) attribute the response-order effects to the implication of mode and order on the respondent’s opportunity to consider the implications of the presented response alternatives. By contrast, Krosnick & Alwin (1987) emphasize that the mode and order influence the recall of the alternatives from memory which in turn prompts response-order effects. Probably the presentation mode and order influence both the respondent’s ability to consider all response alternatives and recall them from memory. The researchers predict a primacy effect in visual modes and a recency effect in auditory modes. But for primacy or a recency effect to occur, Schwarz et al. (1991) suggest that the chosen response option must be a plausible response category to the respondent, that is, a response alternative that receives more positive thoughts from the respondent. This means that a response alternative is plausible if it elicits “agreeing thoughts” when it comes to mind and implausible if it elicits “disagreeing thoughts”. The cognitive elaborative model considers each response category as a persuasive argument (Sudman et al., 1996). That is the more concordant thoughts the response category generates, the more respondents are influenced by it. Then, in addition to the plausibility variable, a triple interaction between mode, order, and plausibility is predictable.

This latter explanation puts forward that in a visual presentation while taking the mode and presentation order effects in mind if a response option that elicits agreeing thoughts appears first on the response list, a primacy effect is expected. On other hand, if

an implausible response option that elicits negative thoughts appears first on the list, a primacy effect might not be likely.

In an auditory presentation, if a plausible response option is last-mentioned, a recency effect is expected, and if an implausible response alternative is last-mentioned a recency effect may not be possible.

An alternative cognitive explanation was proposed by Krosnick (1991a, 1991b) known as satisficing, a term that includes all possible response strategies that respondents use when responding to survey questions to minimize cognitive effort and time. For example, selecting the first reasonable response option is a strategy that could lead to a primacy effect when a reasonable response alternative tops the list. On the other hand, a recency effect is likely when a long list of response alternatives is presented in an auditory format because respondents might not recall all the preceding response options. Overall, the assumptions of satisficing theory regarding response-order effects are quite similar to that of the cognitive elaboration model. However, as suggested by Krosnick et al. (1996) the probability that a respondent satisfices is a function of three factors: (1) the inherent difficulty of the task associated with the question, such as the language and the concepts, (2) the respondent's ability to perform the presented task, (3) the respondent's motivation to perform the task.

Finally, in a meta-analysis study, G. Bishop & Smith (2001) tested the presented explanations for the response-order effects based on 176 split-ballot experiments. First, G. Bishop & Smith (2001) compared the response-order effects by mode. Their analysis consisted of 158 auditory format experiments (response alternatives were read aloud to the respondents) and 18 visual format experiments (response alternatives were presented on show cards).

In the auditory experiments, only 15% produced significant recency effects while 5% produced significant primacy effects. Overall, as argued by G. Bishop & Smith (2001)

these results might suggest that the emergence of the recency effect in auditory modes occurs by chance, as 80% of the experiments did not produce significant effects. Also, this result contradicts the cognitive explanations that expect a recency effect when response alternatives are read aloud.

In the visual format, for which the cognitive explanations suggest primacy effects, they were observed in 61% of the experiments, but overall 6% were significant. Recency effects were significant in 6% of the experiments. These results reached by G. Bishop & Smith reaffirm that the direction of response-order effects could be unpredictable despite the suggestions made by the cognitive elaborative, satisficing, and memory limitation theories.

Second, G. Bishop & Smith (2001) tested question length as a moderating variable of response-order effects. They found no differences in recency and primacy effects as the question length increased. However, recency effects were larger in magnitude, which is consistent with the hypotheses of question complexity, and satisficing. Besides, in auditory format, G. Bishop & Smith found that primacy effects dominated the questions presented at the end of the interview. Relatively, this endorses the prediction of the satisficing theory, which predicts respondents to fatigue and then tend to select first response alternatives.

It is worth noting the inherent limitations of this secondary analysis by G. Bishop & Smith (2001). Even though the sample size of the split-ballot experiments ranged from 2000 to 3000 observations, as usual, these experiments were not tailored to the propositions being tested.

#### **2.3.4. SDR and Response-Order Effects**

Building on the explanations presented by the cognitive elaborative model (G. Bishop & Smith, 1997; Hans-Jurgen Hippler et al., 1989; Sudman et al., 1996) and the

satisficing theory (Krosnick, 1991a) in the previous section, I want to elaborate on how SDR interacts with the response-order effects. I contend that response-order effects precipitate the tendency to SDR in a self-administered questionnaire. This discussion would not be about the truthfulness of the provided answers but would rather be about the pattern and the distribution of the response options based on their serial position on the response list.

Research shows that response alternatives could influence response formation in three different ways: (1) Response options may help the respondents to comprehend the meaning of the question. (2) Respondents may use response options as a frame of reference for estimating the frequency of their behaviors. (3) Respondents may use the response alternatives as a social standard against which they judge their behaviors (Schwarz & Hippler, 1987, pp. 174-176). When the last situation is at work, the respondent sets an expectation about what could be acceptable behavior to the interviewer or the society and seeks to show that s/he meets the expectations. Also as the cognitive elaboration model suggests, the first response options on the list are frequently chosen in visual modes because they work as a comparison standard, and drive the judgment process for the latter response options. Hence, if the first response options appear to be desirable enough to the respondents, respondents may choose them and may not consider the remaining options on the list. In this way, we may say that the primacy effect precipitates the tendency to SDR, and vice versa. These tendencies could be unconscious or deliberate.

The satisficing theory stipulated that the “reasonability” of the response categories is necessary for response-order effects to occur while the cognitive model highlighted that the “plausibility” of the response alternatives is an important determinant for response-order effects.

Reasonable and plausible are both elusive words. According to Sudman et al. (1996), a plausible response elicits “agreeing thoughts”, which are thoughts concordant with social norms and expectations while an implausible response generates thoughts that

conflict with norms and expectations. However, Krosnick (1991) did not explain what he meant by a “reasonable” response. In mathematics, an answer is judged to be reasonable if it is an accurate response to a mathematical problem (Alajmi & Reys, 2007). From a social perspective, we may say a response could be a reasonable one if it is compatible with norms and expectations. A socially desirable response is a broader term and may contain both plausible and reasonable answers. Hence, a primacy effect might be greatly contingent on the perceived desirability of the first response categories.

As an example from the questionnaire used in the survey experiment conducted for this dissertation, when asked the question, “In an online exam, how many times did you look up answers to questions from an online or external source?” with the response options “Never”, “One time”, “Two times”, “three times”, and “four times and above”, it is obvious that this question includes potential answers that conflict with social norms, hence, it evokes the tendency to SDR. The “Never” response option is the only desirable answer that is consistent with social norms and if it appears first on the list, it may be chosen more frequently compared to when it appears last on the response list. This is because, in a visual format, respondents give less consideration to the response categories that appear last on the list. In this particular situation, we may say that the primacy effect precipitates the tendency to SDR. At the same time, for a primacy effect to occur in a visually presented questionnaire, the first response options should appear desirable/reasonable/plausible enough to the respondent.

Another question that might not appear to evoke the tendency to SDR for some individuals but with response options that have differential perceived desirability is in Figure 2.3. The question asks to report the reason for the joined field of study. It is obvious that there is differential perceived desirability between the presented response options. The response options “To help the community I live within” and “I like the field” appear to generate thoughts in line with social norms compared to the other response options on the list. If these two response options lead the list as shown in Figure 2.3, they would be

chosen more, and both SDR and primacy effect are likely. In contrast, if socially less desirable response options, such as “my parents recommended it”, and “to make money” first appear on the list, they may be selected more compared to when they are presented last on the list. In this regard, Stern et al. (2007) highlighted that when respondents confront negative options they tend to select what seems to be a neutral response.

In the situation where response options are presented visually and the socially desirable answers appear last on the list, it is of interest to take into account whether the respondent reads the preceding less favorable answers. Though we cannot know unless we use some advanced methodology, such as the use of eye-tracking technology, those who read the preceding less desirable answers and end up choosing the desirable ones at the bottom may be defined to be susceptible to conscious SDR. Otherwise, we may say a recency effect precipitates the tendency to SDR.

Figure 2.3. Illustration of SDR and Primacy-Effect

What is the main reason that you joined your field of study?

1. ☐ To help the community I live within
2. ☐ I like the field
3. ☐ My parents recommended it
4. ☐ For financial reasons
5. ☐ For social status
6. ☐ To make money
7. ☐ Other

**Note.** The highlighted response options are candidates for a primacy effect and socially desirable response options at the same time.

Respondents often receive nothing in return for their time and effort. As a result, respondents may tend to minimize the time and cognitive effort associated with the question-answer process as satisficing theory suggests. This tendency to reduce the effort in responding to survey questions is stronger in self-administered modes because respondents bear the burden of reading and understanding both the questions and their possible answers and they are lacking motivation and assistance from an interviewer.



Thus, based on the previous research on the response-order effects, I contend that the serial position of SDAs on the response list precipitates the tendency to SDR in a self-administered questionnaire, especially when they lead the list where a primacy effect precipitates SDR.

#### **2.4. Socially Desirable Responding and Perceived Sensitivity**

Sensitivity is closely associated with concerns about the privacy and confidentiality of shared information. Respondents may be sensitive to disclosing information if they have privacy concerns. Also, they may be sensitive if they have confidentiality concerns, that is if the information they provided could be disclosed to a third party (Singer et al., 1993; Tourangeau et al., 2000).

Sensitivity has consequences on the response. First, for a sensitive survey topic, some respondents may decline to join the survey if the topic is revealed in advance, which results in a low response rate. Second, for questions that ask about sensitive behavior, some respondents may decline to respond and others might opt to misreport their answers where they might tend to over-report desirable and under-report undesirable behaviors.

There is no specific definition of a sensitive topic but as a way of identifying them after data collection, it has been suggested that questions that yield a high number of missing values appear to be sensitive (Tourangeau et al., 2012; Tourangeau & Yan, 2007). Topics including income, sexual behavior, drug use, and voting are more sensitive in the USA context as the literature shows. For example, research shows that income data are subjected to substantial underreporting. A review study by Moore et al. (2000) shows that income produces high item nonresponse rates and respondents tend to underreport either the source or the amount of their income, if not underreport both the source and the amount. According to Moore et al. (2000), underreporting greatly affects asset income and income from the government compared to wages and salary income from employment. Regarding the factors that affect income underreporting including the income itself is a

concept that survey designers find difficult to present in clear and simple language that respondents can understand.

Tourangeau et al. (2000) elaborated on three aspects of a sensitive question. One aspect of a sensitive question is that the possible answers have differential social desirability. For instance, as another example from the questionnaire used for this dissertation, when asked, “In the last month, on average, how many days in a week did you do physical activity to stay healthy and fit?” the response option “None”, “1 day”, “2 days”, “3 days and above”, this question may or may not look sensitive to some respondents. Nonetheless, exercise is a socially encouraged activity, and looking at the answers, the presented response options differ in terms of their perceived social desirability. The question may appear more sensitive to a respondent who does not exercise at all for health and fitness purposes than a respondent who exercises regularly. On the other hand, exercising for only “1 day” is also less desirable compared to exercising for “2 days” and “3 days and above”. The survey methodology literature indicates that respondents who find that their true response falls into the contra-normative response categories tend to edit and report a version that is consistent with the social norms. For example, Sudman & Bradburn (1974) highlighted that when the respondent finds her/his answer is contra-normative, the respondent encounters a conflict of whether to report a true response or an edited version and most of the time the respondent sorts out the conflict in the latter direction.

Tourangeau et al. (2000) argue that the distortion the sensitive questions trigger is contingent on the presence of an interviewer, the topic the question is addressing, and the facts about the respondent’s attitude or behavior. A validation study of anthropometric measurements by Gil & Mora (2011) indicated that respondents tended to systematic distortions when they self-reported their anthropometric measurements compared to when their measurements were taken by trained personnel. Likewise, Näher & Krumpal (2012) confirmed that online surveys are susceptible to SDR in questions that ask about voting

behaviors, partner-cheating, and driving under the influence of alcohol. Unlike Tourangeau et al. (2000), these studies affirm that the presence of an interviewer, the topic the question is addressing, and the facts about the respondent's attitude or behavior are only some of many factors that might affect the degree of perceived sensitivity. Albeit, the perceived sensitivity is context-dependent and is a product of many variables that may be unknown to us. Hence, the greater the perceived question-related sensitivity, the greater misreporting or the tendency to SDR. Also, it is important to highlight that any question could be sensitive as some respondents may have a higher degree of perceived sensitivity. A good example is the study by Gil & Mora (2011) that I mentioned earlier. Gil and Mora reported that some respondents systematically misreported their weight and height. Therefore, misreporting is down to the degree of perceived sensitivity. The presence of an interviewer and the topic are only two of many factors that form the perceived sensitivity.

## **2.5. Conceptualizing Socially Desirable Responding in a Self-Administered Survey**

It is evident in the reviewed literature that SDR is conceptualized in various ways. But the two main conceptualizations of SDR are the need for social approval and trait desirability. These two conceptualizations were competing in the early stages of the research on SDR. However, the reality that SDR can be a trait of both the respondent and the question contributed to the SDR controversy (Ghei, 1973; Helmes, 2000).

In survey methodology, the conceptualization of SDR is closely related to the trait desirability where some questions are more likely to trigger SDR and some response categories have a higher perceived social desirability. Despite this, the fact that some respondents are more susceptible to responding in a socially desirable way cannot be ignored as well. Therefore, SDR is a response bias (a systematic error) that could be triggered by the content of the questions or the inherent tendency of the respondent to give socially desirable responses, or both.

As the overall purpose of this dissertation is to examine the influence of survey attributes on SDR in self-administered surveys, it is also important to consider that SDR could be triggered by other factors, such as the perceived topic sensitivity, sponsor, and the order in which the response categories are presented. Therefore, in this dissertation, I conceptualized SDR as a systematic tendency to choose socially desirable response categories across a range of items in a self-administered survey evoked by either the survey attributes, inherent tendency, or sensitivity of survey items, or together. This conceptualization of SDR is in line with the definition “A response bias is a systematic tendency to respond to a range of questionnaire items on some basis other than the specific item content” (Paulhus, 1991, p. 17).

## **2.6. Proposed Conceptual Framework**

Based on the reviewed literature and the SDR conceptualization that I presented in the previous section, I first hypothesized that SDR could be both an item-related trait and an individual tendency that is, some questions are more likely to evoke a greater tendency to SDR while some respondents are more susceptible to desirable responding than others. Second, I hypothesized three ways that survey-related attributes could trigger the tendency to SDR (1) respondent’s overall interest in the survey (after s/he reads the survey introductory statement), survey topic, sponsor, and perceived topic sensitivity could prompt a systematic tendency to respond in a socially desirable manner. (2) The order in which the response categories are presented precipitates the tendency to choose socially desirable response categories. (3) As item-related sensitivity increases the tendency to SDR heightens. Figure 2.4 presents a simple model that summarizes how the survey attributes I proposed are related to SDR.

Summary of the proposed hypotheses

H1: Respondents who score high on the Marlowe-Crowne SDR short scale tend to report more socially desirable answers.

H2: Respondents who find the survey introductory statement less interesting have a greater tendency to SDR.

H3: Socially desirable responding differs by the survey topic presented in the survey introduction.

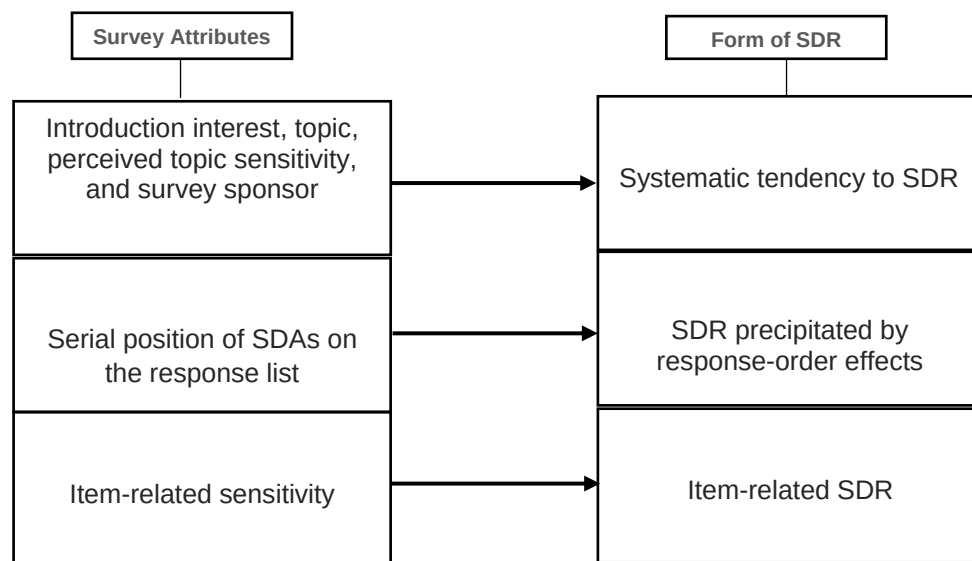
H4: Respondents with a greater perceived topic sensitivity tend more to SDR.

H5: The greater leverage the survey sponsor has on the prospective respondents, the more tendency to SDR.

H6: The serial order of socially desirable response categories on the list precipitates the tendency to SDR in a self-administered questionnaire.

H7: The increment of item sensitivity results in more tendency to socially desirable responding.

Figure 2.4. A Conceptual Framework Illustrating Effects of Survey Attributes on the Tendency to SDR in a Self-Administered Survey



I started below by elaborating on the theoretical rationales underpinning the proposed hypotheses.

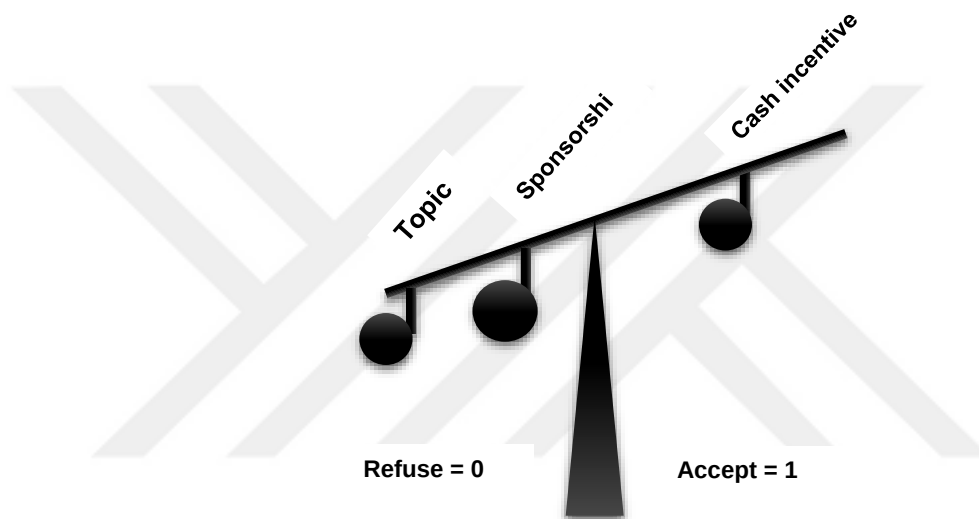
1. To begin with, I focused on survey features that could affect respondents in forming their first impressions of the survey, which in turn could affect their response behavior and tendency to SDR. These include survey topic, survey sponsor, perceived topic sensitivity, and introduction interest. In a self-administered questionnaire, respondent motivation is an important determinant of data quality (Cannell & Fowler, 1963). For instance, reluctant respondents tend to introduce more response biases (Bach et al., 2020; Tourangeau, 2020), and less interested respondents leave some questions unanswered (Couper, 1997). To elaborate on how the aforementioned survey attributes could trigger the tendency to SDR, I adopted the leverage-salience theory.

The leverage-salience theory is a survey participation theory and proposes that survey attributes, such as survey topic and survey sponsor influence the survey participation decision for sample members (Groves et al., 2000). In summary, the leverage-salience theory aims to reason why some sample members would participate in a survey, whereas others would not.

Figure 2.5 exemplifies the possible ways that a respondent may judge the attributes of a presented survey request. Each ball stands for a survey attribute that could contribute to whether the respondent accepts the survey or not. The length between the fulcrum and the hook denotes the importance which the potential respondent attaches to the attribute while deciding to accept the survey request. The size of the ball represents the extent to which the attribute was made salient and noticeable during the survey request. In this example, though the survey topic and sponsor were presented salient enough, the respondent is less interested. The cash incentive attracted the respondent's interest but it was not strong enough to come over the respondent's negative predisposition towards the survey topic and sponsor. The influence of a survey attribute depends on how important

it is to the respondent and the extent to which the attribute was made salient during the survey introduction.

Figure 2.5 Example of Leverage and Salience of Three Survey Request Attributes



Source: (Groves et al., 2000)

The theoretical explanation suggested by Groves et al (2000) is mainly concentrated on the interviewer-assisted survey modes. However, by extension, a large part of the leverage-salience theory principles also applies to the self-administered questionnaire. I contend that survey attributes, such as topic and sponsor could influence not only the survey participation decision for sample members but the response behavior as well. Of course, there are many survey attributes, but in the present dissertation, the primary focus is on introduction interest, the survey topic and sponsor, and perceived topic sensitivity.

Previous studies have shown that the survey topic and sponsor influence survey participation, response rates, and data quality. The survey topic holds a special significance for survey invitations because it reveals what the survey is about. In an experimental mail survey, Martin (1994) reported that respondents who found the survey

topic interesting showed a higher response rate than less interested respondents. Also, respondents who found the survey topic interesting were unlikely to produce item nonresponse. Similarly, a study by Keusch (2013) highlighted that individual interest in survey topics affects participation behavior and data quality in online panels.

In addition to the individual interest, how the survey topic is presented during the survey introductory statement is essential as well. Making the topic salient enough during the introductory statement is a decisive point. If the topic is disguised or vaguely presented, the individual interest in the topic will be lost too. By contrast, when the topic is presented salient enough it is easier to grasp what the survey is about. Therefore, the topic influence is contingent on both the topic salience<sup>10</sup> and individual interest.

Groves et al. (2000) presented empirical evidence demonstrating that the survey attributes that are made more salient in the survey introduction would have leverage on the respondent's survey participation decision. People are more cooperative and willing to accept the survey when the survey topic interests them (Groves, Presser, et al., 2004).

Sponsor is another important survey feature that appears during the survey introductory statement and as a meta-analysis study by Groves & Peytcheva (2008) confirms, the legitimacy of the responsible authority of the survey influences the participation propensity.

According to the sample members, some survey sponsors may seem to be legitimate and prestigious. Studies on mail surveys have shown that survey sponsorship influences participation propensity and data quality. A study by Doob & Freedman (1973) revealed that people are more eager to respond to survey requests from a university compared to survey requests coming from private companies. Likewise, (W. H. Jones,

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<sup>10</sup> According to Lavrakas (2008), "Saliency refers to the degree to which a topic or event resonates with a prospective respondent or sample member". In this thesis, I conceptualized "saliency" as the degree to which a survey topic or sponsor is noticeable and important to the prospect respondent.



1979; W. H. Jones & Linda, 1978) reported sponsorship effects on response rates and Ladik et al. (2007) reported university sponsorship effects differed by city. The home city of the sponsoring university had a higher response rate than out-of-state cities. Besides, it is important to note that the sample members' involvement with the survey sponsor may influence both participation tendency and response behavior. Likewise, Futrell & Swan (1977) highlighted that the sponsor-respondent relationship might adversely influence the information provided by the respondent.

Building on the previous discussion, the influence of the survey topic is contingent on the personal interest in the survey topic (Groves, Presser, et al., 2004) and whether the topic is presented salient enough (Groves et al., 2000). When the survey topic is presented salient enough in a survey introductory statement, respondents attach dissimilar interest to the survey topic as confirmed by the literature. Based on the individual interest in the survey topic, I propose that respondents who are less interested in the survey topic are likely to introduce response biases, particularly, the tendency to SDR.

Also, I proposed that when the sponsor has leverage on the sample members that may influence their response behavior. The greater leverage the survey sponsor has on the prospective respondents, the more the respondents may tend to SDR.

SDR is often linked to sensitive topics (Tourangeau & Yan, 2007) or embarrassing and threatening topics (N. Bradburn et al., 2004; Cannell & Fowler, 1963). However, every topic might have some degree of perceived sensitivity and that perceived sensitivity might differ for sample members. Thus, I hypothesized that the greater the perceived survey topic sensitivity, the greater tendency to SDR.

Topic and sponsor are only two of many survey attributes that can appear when the survey request (or invite) is presented. For example, in an interviewer-assisted mode, the interviewer is an important attribute as s/he presents the survey request. In this regard, the interviewer's experience is a vital element because experienced interviewers can

tailor<sup>11</sup> the idiosyncratic concerns of each respondent, and thereafter, present survey attributes that interest each respondent (Groves et al., 2000). In a self-administered survey (paper, web, ACASI, and IVR) mode of recruitment (post, e-mail, phone, etc.), and the visual design (the font size, and the color of the page when the questionnaire is presented visually) are important features.

Every survey supposedly starts with an introductory statement. Couper (1997) indicated that respondents' interactions with introductory statements were associated with their subsequent response behaviors in a survey interview. Respondents who were less interested in the introductory stage introduced more biased tendencies. In self-administered questionnaires, (except in self-administered aural modes such as IVR) a written introductory statement is presented and it is not clear whether and how respondents read it. Nevertheless, a written introduction is more standardized than one presented by an interviewer because the interviewer might not read the entire introductory statement or tailor it to the respondent's characteristics. Also, it is understandable that sample members may differently interact with a written text, and based on their interpretations, they form an overall interest in the survey.

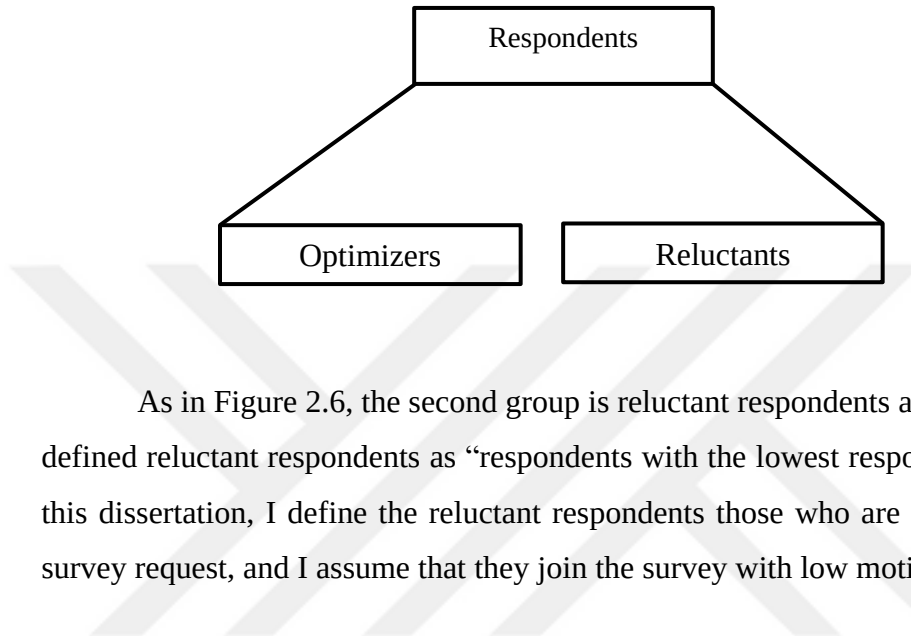
After the introductory statement is presented, respondents form an overall interest in the survey. I term the respondent's overall interest in the survey as "introduction interest" to refer to the influence of survey attributes combined. Based on the introduction interest, respondents can be categorized into two groups (see Figure 2.6).

The first group is optimal respondents and they carefully complete a four-step cognitive process (comprehension, retrieval, judgment, and reporting) during the question-answer process as defined by (Krosnick, 1991a). Here, building on Krosnick's definition, I define optimizers as those who find the survey interesting and respond to survey questions with honesty.

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<sup>11</sup> In survey methodology, tailoring refers to personalize survey request with the intent to influence the sample member's decision regarding survey participation (see Lavrakas, 2008, p.873)

Figure 2.6. Categorization of Respondents Based on the Introduction Interest



As in Figure 2.6, the second group is reluctant respondents and Bach et al. (2020) defined reluctant respondents as “respondents with the lowest response propensities”. In this dissertation, I define the reluctant respondents those who are less interested in the survey request, and I assume that they join the survey with low motivation.

From a survey perspective, ideal respondents are optimizers, as they could be expected to be more eager and ready to devote time and cognitive effort to the question-answer process. Consequently, they respond optimally and are less likely to introduce response biases.

In contrast, the reluctant respondents are less interested in the survey. As a result, they may join the survey with hesitation. I proposed that this group is more likely to introduce response biases like the tendency to choose socially desirable response options in a given response list.

2. In the second part, I examined whether the presentation order of the response categories (known as response-order effects in survey methodology) precipitates the tendency to SDR. In a self-administered questionnaire, both questions and their response categories are presented to respondents and when the response categories are presented vertically, the order in which the response categories are presented tends to influence the response (Garbarski et al., 2015; Hans-Jurgen Hippler et al., 1989;

Holzknicht et al., 2021; Keusch & Yan, 2018; Malhotra, 2008; Schwarz & Hippler, 1990; Smyth et al., 2019; Yan et al., 2018).

The two main forms of response-order effects are primacy and recency effects. The primacy effect occurs when the first response options are chosen more frequently while the recency effect occurs when the last-presented response options are more likely to be chosen (Dillman et al., 2014). Krosnick (1991) elaborated that primacy and recency effects result from what he called satisficing. According to Krosnick, satisficing implies when respondents fail to perform carefully and thoroughly a four-step cognitive process (comprehension, retrieval, judgment, and reporting) necessary to generate accurate responses. Rather than carefully going through this cognitive process, satisficing respondents skip part of the cognitive process and adopt strategies to reduce the time and effort necessary for the question-answer process. These include merely choosing the first reasonable answer, agreeing with any assertion (weak satisficing as termed by Krosnick), endorsing the status quo, giving similar answers, saying “don’t know”, or randomly choosing among the presented response options (strong satisficing).

From a memory perspective, primacy and recency effects occur because the first and the last response options are better remembered by respondents and often selected because response options that appear first enter the long-term memory and those presented later on the response list enter the short-term memory. In self-administered modes or interviewer-assisted modes where visual aids, such as show cards are used, primacy effects may arise, as a form of weak satisficing.

On the other hand, according to the SDR theory (Edwards, 1957), response options can be either consistent with social norms (desirable) or conflict with norms (undesirable). Hence, respondents may choose response options based on their perceived social desirability.

To examine whether satisficing is related to SDR, Kaminska & Foulsham (2013) used a real-world eye-tracking methodology which is relatively new to the survey research methodology. Kaminska & Foulsham measured the respondent's visual attention by following the respondent's eye movement as the respondent answers survey questions. The researchers applied the eye-tracking methodology to a face-to-face interview with show cards, web-based, and a self-administered questionnaire (paper-and-pencil). In this regard, they are the first who applied the eye-tracking methodology to a paper-based mode of data collection. In sum, the researchers indicated that satisficing results in the tendency to SDR in self-administered modes of data collection. However, this study did not have an experimental component on the serial position of socially desirable answers (SDAs) on the response list. Because the serial position of a socially desirable response category could potentially facilitate its selection, the current dissertation aims to fill this gap by varying the serial position of SDAs on the response list when SDAs are presented first against last on the response list- with the assumption is that the tendency to SDR is more likely when SDAs appear first on the list.

3. Finally, as I elaborated in the literature review section, SDR is closely related to sensitive questions. In the final part of the dissertation, I examined whether more sensitive questions are greatly influenced by SDR.



## **CHAPTER 3. METHODS**

### **3.1. Data**

To empirically test the proposed conceptual model in chapter two, this dissertation used two sources of data: (1) the major source of data was primary data collected through an online survey experiment, and (2) a secondary data source served as enrichment and informed the areas the experimental data could not inform. This chapter starts by presenting the methodology of the online survey experiment, the measurement of the variables, the source of the secondary data, and finally presents the analysis and statistical procedures used.

### **3.2. Online Survey Experiment**

#### **3.2.1. Design**

The use of randomized survey experiments with the split-sample technique makes it possible to measure the effects of design characteristics on responses (Fowler, 2004; Groves, Floyd J. Fowler, et al., 2004; Tourangeau, 2004). Survey experiments blend the benefits of randomization of treatments and natural settings and could be ideal when teamed with representative random samples. The main part of the data that this dissertation uses comes from an online split-sample experiment.

#### **3.2.2. An Overview of the Split-Sample Technique**

The Split-sample (also split-half or split-ballot) technique is a widely used experimental tool in survey research methodology. It enables us to empirically compare the variations of question order, wording, content, response order, or variations between two data collection modes. In practice, respondent groups that are equal in size are preferable (e.g; Booth-Kewley et al., 1992; Olsen, 2002; Trapl et al., 2011). For instance,

Fowler (2004) recommends 35 to 75 respondents in each subsample, for substantial precision. However, neither the optimal sample size nor the ideal changes that one can perform on a questionnaire have been cemented in the literature because the sample size and the appropriate changes could differ for the question type or mode of data collection, etc.

Survey experiments that compare versions of a questionnaire or questions are usually carried out in the field. Also, the adoption of factorial designs is recommended when carrying out survey experiments due to their ability to disentangle effects that could be confounded (Tourangeau, 2004).

Fowler (2004) highlighted three ways that question versions can be compared with a split-sample experiment:

1. To compare response distributions,
2. To compare the validity of different versions of a question (although this needs a standard that assists to sort out which version is more valid),
3. To compare the usability of different versions of a question by pairing cognitive interviewing and a split-sample experiment.

In this dissertation, the purpose was not to compare different versions of a question, but instead, to compare the distribution of socially desirable response categories by experimentally varying the order in which the response categories are presented. An online split-sample experiment was carried out to compare the distribution of socially desirable response categories across experimental groups. Despite its limited use, the split-sample technique complements the traditional tool testing techniques like field testing, coding behavior, and cognitive interview that help researchers to identify questions that appear to impose comprehension problems. Other pre-test tools merely provide qualitative assessment and don't give answers to the question, such as whether the revised version of



a question produces improvement over its original form, and what could be the effects of an improved form of a previously used question on data quality. Also, they may not inform to what extent a version of a question elicits more valid data than its other versions (though this is only possible in the availability of a standard question to compare against). In contrast, the split-sample offers quantitative assessment and works as a complement (Fowler, 2004).

### **3.3. Dependent Variable**

The dependent variable of this dissertation is socially desirable responding (SDR), empirically measured as the tendency to choose socially desirable response categories in a self-administered questionnaire.

The perceived normative threat influences answers to survey questions and respondents who engage in illegal or socially undesirable behavior might under-report while those who fail to perform socially encouraged activities are predisposed to over-report (N. M. Bradburn et al., 1978). To determine the desirability of the response categories, based on the literature on behavior reporting, I first categorized behaviors as socially desirable and undesirable. For questions that addressed desirable behaviors, I rated the categories that give the notion of over-reporting as socially desirable response categories. For the questions that addressed undesirable behaviors. I rated the response categories that suggest under-reporting as socially desirable response categories.

The rating of item desirability is a conventional practice in psychology. Respondents or judges are asked to rate how desirable survey items are. To determine the direction of socially desirable responding, it is necessary to know the desirability that respondents attach to response categories (Stocké & Hunkler, 2007). To get an idea about the desirability of the response categories from the point of view of the respondents, a group of Hacettepe University Institute of population students was asked to rate the desirability of response categories as elaborated in Table 3.1.

Table 3.1. Response Category Desirability Ratings

| No | Item                                                                                                                                                                                                      | Response categories that were rated desirable in the initial rating based on the literature | Response categories rated desirable by the students   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------|
| 1  | What is the main reason you chose your field of study?                                                                                                                                                    | To help the community I live within                                                         | To help the community I live within /I like the field |
| 2  | On average, how much time do you allocate for distance education per day?                                                                                                                                 | 5 hours and above                                                                           | 3-4 hours                                             |
| 3  | In general, how would you evaluate your time management during the distance education process?                                                                                                            | Very good                                                                                   | Very good/ good                                       |
| 4  | In the 2020-2021 fall semester, how would you rate your academic cumulative GPA?                                                                                                                          | Very good / Excellent                                                                       | Very good/excellent                                   |
| 5  | During online classes, how often do you join classroom discussions?                                                                                                                                       | Every time                                                                                  | Every time                                            |
| 6  | In general, how attentive are you during online classes?                                                                                                                                                  | Every time                                                                                  | Every time                                            |
| 7  | During the 2020-21 fall semester, how many hours a day do you spend reading for academic purposes?                                                                                                        | 5 hours and above                                                                           | 5 hours and above                                     |
| 8  | In general, do you browse social media platforms like Facebook, Instagram, or Twitter during an online class?                                                                                             | No                                                                                          | No                                                    |
| 9  | During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not? | No                                                                                          | No                                                    |
| 10 | In the last 24 hours, have you spent time without wearing a mask with someone who is not currently living in the same home or dormitory as you?                                                           | No                                                                                          | No                                                    |

Table 3.1 Cont.

| No | Item                                                                                                     | Response categories that were rated desirable in the initial rating based on the literature | Response categories rated desirable by the students |
|----|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 11 | In the last month, how many days a week did you do physical activity on average to stay healthy and fit? | 3 days and above                                                                            | 3 days and above                                    |
| 12 | Have you ever smoked cigarettes, even once?                                                              | No                                                                                          | No                                                  |
| 13 | Have you ever drunk alcohol, even once?                                                                  | No                                                                                          | No                                                  |
| 14 | Are you currently in a romantic relationship?                                                            | Yes                                                                                         | Yes                                                 |

Note. A complete list of the response categories is in Appendix C.

Using Google Forms, an online questionnaire was created containing only the questions of interest (14 questions) and their response categories. The Google Forms link was sent to a group of students to rate the desirability of response categories. For each question, they were asked to rate the socially desirable response category. The link was sent to 20 students (13 females and 7 males) and 14 of them responded and returned complete ratings. It is important to highlight that the students were familiar with the concept of social desirability and its meaning. As shown in Table 3.1 there is a high agreement between the initial ratings based on the literature and the students' ratings.

The two ratings agreed on the desirable answer of 12 out of the 14 questions. For the remaining two questions, the desirable direction is sorted using the rating based on the literature.

Response trends and distributions can hint at possible explanations regarding response behavior. For example, high rates of over-reporting socially encouraged activities and under-reporting or denial of socially discouraged ones hint at a systematic tendency to SDR. Therefore, the distribution and patterns of socially desirable answers are the cornerstone for the current study to predict the tendency to a systematic SDR. Also, a respondent who provided a high number of socially desirable answers across a range of

14 questions could reflect true answers rather than a systematic tendency to SDR. To distinguish between these two explanations, at least to some extent, a Turkish short-version (7-item) of the Marlowe-Crowne social desirability scale was incorporated into the questionnaire (see Table 3.2). This Turkish short version of the Marlowe-Crowne SDR scale was translated and tested by Ural & Özbirecikli (2006) and has a Cronbach's alpha of 0.78. The rationale is that respondents who score high on the Marlowe-Crowne short scale and report many socially desirable response categories above the mean across a range of 14 are likely to respond in a socially desirable manner. The Marlowe-Crowne SDR scale also enables control for respondent-level differences when evaluating the effects of the main independent variables of interest.

Table 3.2. Marlowe-Crowne SDR Short-Scale

| Item                                                                            | True/False |
|---------------------------------------------------------------------------------|------------|
| I have never intensely disliked anyone.                                         |            |
| I am always careful about my manner of dress.                                   |            |
| No matter who I'm talking to, I'm always a good listener.                       |            |
| I'm always willing to admit it when I make a mistake.                           |            |
| I always try to practice what I preach.                                         |            |
| I would never think of letting someone else be punished for my wrong-doings.    |            |
| I have never been irked when people expressed ideas very different from my own. |            |

Finally, in this dissertation, the dependent variable that I used in the statistical models took the form of a dichotomous and count variable (see Table 3.3). I coded the response categories of the 14 items that I intended to use for measuring the tendency to SDR into two, as desirable or not desirable (socially desirable=1, socially not desirable=0). Then, I summed the number of socially desirable response categories reported by a respondent across 14 items. Therefore, all respondents received a score between 0 and 14 where ( $y = 0, 1, 2, \dots, 14$ ), and a respondent whose score is above the mean would be considered to demonstrate a tendency to SDR.

Table 3.3 Measurement of the Dependent Variable

| Measurement Procedure                                                                                                                                                                                       |                                                                                                                                                                                                            |                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Behavior categorization based on literature</b> <ul style="list-style-type: none"> <li>Desirable behavior</li> <li>Undesirable behavior</li> </ul>                                                    | <b>2. Response category</b><br>desirability ratings                                                                                                                                                        | <b>3.</b> Respondents were grouped into groups based on their scores on the Marlowe-Crowne short scale and compared their reported number of socially desirable response categories across a range of fourteen items. |
| Coding procedure                                                                                                                                                                                            |                                                                                                                                                                                                            |                                                                                                                                                                                                                       |
| <b>1. Item level coding</b><br>Binary variable<br>$\begin{pmatrix} 1 = \text{responded in the socially desirable direction} \\ 0 = \text{didn't respond in the socially desirable direction} \end{pmatrix}$ | <b>2. Coding across a range of 14 items (Systematic tendency to SDR)</b><br>Count variable<br>$(y = 0, 1, 2, \dots, 14)$<br>The reported number of socially desirable response categories across 14 items. |                                                                                                                                                                                                                       |

### 3.4. Experimental Variables

#### 3.4.1. Survey Topic, sponsor, and Response Order

The online survey experiment aimed to test three interconnected aspects of survey attributes that could trigger the tendency to give socially desirable answers in an online self-administered questionnaire. A completely randomized factorial design makes it possible to study the effects of two or more variables at the same. Also, in a factorial design, each variable has two or more levels, and the combination of two or more levels of different variables forms an experimental treatment. Besides, the factorial design allows the investigation of the main and the joint effects of the independent variables on the dependent variable simultaneously (Kirk, 2014).

The online survey experiment was a 2×2×2 between subjects in which one of the factors was the survey topic (“focus during online classes” and “the social life of students during the distance education process of the COVID-19 world pandemic”) (see Table 3.4 for factors and levels and Table 3.5 for resulting experimental treatments). These topics were selected so that they could attract the interest of the target population during the pandemic, and at the same time were thought to have some degree of sensitivity. Both topics were meant to relate to the educational situation during the pandemic, a period when schools and universities around the world were partially or fully closed at times and traditional education was replaced by online education.

Another two-level factor was the survey sponsor<sup>12</sup> (a Ph.D. thesis vs. the Hacettepe University Institute of Population Social Research Methodology Department (HUIPS DSRM)). Approval was gained from the Hacettepe University Institute of Population Social Research Methodology Department to use the name of the department as a treatment.

As mentioned earlier, the survey topic and survey sponsor were experimentally varied and each had two levels. For the topic, I predicted that the “focus during online classes” to be more sensitive, and interesting, and subsequently produce a higher tendency to a systematic SDR -to consistently choose socially desirable response categories across a range of items- compared to the “social life of students during the distance education process of COVID-19 pandemic” topic.

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<sup>12</sup> In survey methodology, survey sponsor is the responsible party for the financial costs related to the sampling, data collection, and other survey activities (see, Lavrakas, 2008, 868). Here, I conceptualized sponsor as the party in which behalf the survey is done.

Table 3.4. Experimental Factors

| Factors                                                    | Levels                                                                                              |
|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Topic                                                      | Level 1: Focus during online classes                                                                |
|                                                            | Level 2: The Social life of students during the distance education process of the COVID-19 pandemic |
| Sponsor                                                    | Level 1: Ph.D. thesis                                                                               |
|                                                            | Level 2: HUIPS DSRM                                                                                 |
| Position of socially desirable answer on the response list | Level 1: Socially desirable answers were presented first on the response list                       |
|                                                            | Level 2: Socially desirable answers were placed at the bottom of the response list                  |

Considering the relationship between the University and the respondents, I expected that the “Hacettepe University Institute of Population Studies Department of Social Research Methodology” would have more leverage on respondents and may result in a higher tendency to SDR compared to “A Ph.D. Thesis” as a sponsor assuming a relatively vertical relationship as opposed to a relatively horizontal one, respectively.

Finally, the third factor (response order) is composed of two levels of the serial position of the SDAs on the response list (when placed at the top vs. at the bottom of the response list) (see Table 3.4).

To investigate the response-order influence on the tendency to SDR, the presentation order of the response categories was experimentally varied. Respondents were randomly assigned to one of two versions of the online self-administered questionnaire. One group of the respondents received a questionnaire version on which socially desirable response options were placed first on the response list. The second group of respondents received a questionnaire version in which the socially desirable responses come at the bottom of the response list.

Table 3.5. Experimental Treatments

| Treatment | Factors by level                                                                           |                       |                                        |
|-----------|--------------------------------------------------------------------------------------------|-----------------------|----------------------------------------|
|           | Topic                                                                                      | Sponsor               | Placement of socially desirable answer |
| 1         | Focus during online classes                                                                | Ph.D. thesis research | Top of the response list               |
| 2         | Focus during online classes                                                                | Ph.D. thesis research | Bottom of the response list            |
| 3         | Focus during online classes                                                                | HUIPS DSRM            | Top of the response list               |
| 4         | Focus during online classes                                                                | HUIPS DSRM            | Bottom of the response list            |
| 5         | The Social life of students during the distance education process of the COVID-19 pandemic | Ph.D. thesis research | Top of the response list               |
| 6         | The Social life of students during the distance education process of the COVID-19 pandemic | Ph.D. thesis research | Bottom of the response list            |
| 7         | The Social life of students during the distance education process of the COVID-19 pandemic | HUIPS DSRM            | Top of the response list               |
| 8         | The Social life of students during the distance education process of the COVID-19 pandemic | HUIPS DSRM            | Bottom of the response list            |

Note. Hacettepe University Institute of Population Studies Department of Social Research Methodology was abbreviated as HUIPS DSRM

I assumed that a higher reported number of socially desirable answers among the first group of respondents compared to the second group would suggest that a primacy effect precipitates the tendency to SDR while a higher number of socially desirable



answers among the second group would suggest that a recency effect mediates the tendency to choose socially desirable response categories.

All other question-related contexts, such as the content, and sequence were constant across questionnaire versions. Also, the visual aspects of the questionnaire e.g. color, space, etc. were kept constant as they could influence the response as a growing literature in this area suggests (Stern et al., 2007). Also, the response categories were mutually exclusive, have differential desirability, and ranged from 2 to 7 response options. The longest response option consisted of 6 words: “Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum” which translates as “I cannot connect to online courses in any way”.

The number of experimental conditions of a factorial design is calculated by multiplying the levels of the factors (Leary, 2001). In the case of this experiment, having three factors with two levels each requires eight experimental conditions  $2 \times 2 \times 2 = 8$  as shown in Table 3.5. When all possible experimental conditions are included in a factorial experiment, the treatments are known as completely crossed treatments (Kirk, 2014; Leary, 2001).

### **3.4.2. Introduction Interest and Perceived Topic Sensitivity**

Each of the introduction interests and perceived topic sensitivity was measured with a single item. To measure the introduction interest, the following question was asked.

“What was your impression of the survey after you read the introduction?” with the scaling points “not interesting at all”, “somewhat interesting”, “interesting“, and “very interesting”.

Another question that measured the perceived topic sensitivity was included in the questionnaire. Respondents were first reminded of the survey topic and thereafter asked to rate the topic sensitivity, for example, one version read “As you may remember, this

survey was about the social life of students during the distance education process of the COVID-19 pandemic, which statement below best describes this topic?” with the scaling points “not sensitive at all”, “sensitive”, and “very sensitive”.

#### **3.4.3. Sensitivity of the Items**

In survey methodology, to determine the sensitivity of survey topics and questions researchers ask respondents to rate the sensitivity of survey questions (Tourangeau et al., 2012). In the experimental data, to evaluate the sensitivity of survey items, the same group of students who rated the desirability of response categories (separate sample) assessed the sensitivity of items of interest. In line with the online survey experiment context, the students were asked to assess the sensitivity of the items as internet survey items. This might not reflect the perceived sensitivity of the respondents but at least works as a proxy measurement. This is another approach where one can ask separate sample members to rate the sensitivity of survey items rather than respondents.

To evaluate the sensitivity of survey items in the 2012 Argentina GSHS dataset, I ranked items from less sensitive to more sensitive by the use of item nonresponse rates and an objective sensitivity index derived by Gnambs & Kaspar (2014) (see Chapter 4. Section 4.4.2).

#### **3.5. Controlled and Limited Effects**

It is essential to identify and control other variables that could influence the tendency to choose socially desirable response categories. Variables like fatigue and boredom triggered by the questionnaire length, inattentive responding, and time pressure could make respondents tend to choose specific response categories, such as the first response categories.

The length of the survey not only influences the actual survey time and respondent's perceived survey time, but also it has been shown to influence the decision to complete a survey questionnaire and response rates (Rolstad et al., 2011; Tourangeau et al., 2009). It also influences the indicators of survey response quality in web surveys. Answers to the questions that appear later in the questionnaire are faster and shorter (Galesic & Bosnjak, 2009). As a result, in long questionnaires, it is plausible that fatigue and boredom might strike amongst respondents as suggested by Krosnick (1991) and as a result respondents adopt strategies, such as selecting first response categories. In an attempt to limit the potential influence of fatigue and boredom on response behavior, at least to some degree, I kept the survey relatively short (on average the survey took about 5 minutes to complete).

Google Forms does not have a real-time record feature, instead, in the online survey experiment, respondents were asked to report their perceived survey time with the response scales “less time than I expected”, “a reasonable amount of time”, and “a lot of time”. I used the perceived survey time as a reason for satisficing and added it to the statistical modeling. Here, I hypothesize that the greater the perceived survey time, the greater the tendency to select the first response category (tendency to satisfice). I included the perceived survey time variable in the analysis as an independent variable.

Another important factor that may affect response behavior is inattentive responding. Some respondents may give answers without reading the questions. Attention check filters are very common in internet-based survey research to screen out respondents who inattentively respond to survey questions (Bowling et al., 2016; Huang et al., 2015). There are two types of attention checks: 1) Instructional manipulation checks, and 2) Instructed-item response which has a similar format to survey questions, is simple, and requires less effort (Pei et al., 2020). A single item of the latter type was disguised in the questions to control for the inattentive responding effect by excluding respondents who failed to pay attention to the attention check instruction from the analysis.

### **3.6. Respondents**

The study population of this experimental survey was Hacettepe University students, including undergraduate, Master's, and Ph.D. levels. The online survey experiment was conducted to ask the students about their focus during online classes and their social life during the distance education process of the COVID-19 world pandemic. Detailed information concerning how the population was invited to the online survey experiment is available in the next sections.

### **3.7. Random Assignment to Experimental Treatments**

In the absence of access to paid survey tools, a question-based approach to assigning respondents to random groups was required. To randomly assign the respondents to the experimental treatments, a variable that was assumed to be roughly equally distributed among respondents was utilized. In this online experiment, this was chosen to be the day of the date of birth (including the months that end in 31 days) was used, as this variable has approximately equal intervals as illustrated in Table 3.6. The experiment contained eight experimental conditions, implying 8 questionnaire versions. Respondents were randomly assigned to these versions through a choice list that contained the days of the month and grouped into eight groups (1-4, 5-8, 9-12, 13-15, 16-19, 20-23, 24-27, and 28-31). The respondents are almost evenly distributed among these eight groups. The choice list was placed beneath a neutral introductory statement. After a respondent selected his/her birth by the day of the month from the list, the respondent was randomly directed to one of the questionnaire versions, prepared in Google Forms.

Table 3.6. Random Assignment<sup>13</sup>

| Group | Birth by the day of the month | Expected proportions |
|-------|-------------------------------|----------------------|
| 1     | 1-4                           | 0.13                 |
| 2     | 5-8                           | 0.13                 |
| 3     | 9-12                          | 0.13                 |
| 4     | 13-15                         | 0.10                 |
| 5     | 16-19                         | 0.13                 |
| 6     | 20-23                         | 0.13                 |
| 7     | 24-27                         | 0.13                 |
| 8     | 28-31                         | 0.11                 |

### 3.8. A Priori Power Analysis

The power of an experimental study is based on four important elements, 1) the significance criterion (type I error), 2) the power (type II error), 3) the effect size, and 4) the sample size. According to Cohen (1988), these four factors are interdependent, and each of them can be determined by fixing the other three. Power analysis can be done in four different ways by which one of the foregoing parameters is solved: 1) Priori power analysis, 2) Post-hoc power analysis, 3) Criterion computer analysis, and 4) Sensitivity power analysis (Cohen, 1988; Hunt, 2012). In the current situation, a priori power analysis was performed, which is usually done at the design stage to find an adequate sample size. The calculation of the sample size of the current experiment is in the next sections.

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<sup>13</sup> The expected proportions were calculated dividing the months by 365 days and then multiplying by the number of days in each group.

### **3.8.1. Samples size**

To find an adequate sample size, I used Minitab version 17.1. In this software, it is necessary to have the values of the significance criterion, the power, the maximum difference, and a standard deviation.

### **3.8.2. Significance Criterion and Power**

The significant criterion is the probability of mistakenly rejecting a true null hypothesis (type I error, also known as false positive) and a value of 0.05 is often used.

On the other hand, type II error  $\beta$  is the probability of not rejecting the null hypothesis when it should be rejected (false negative) and is closely related to the power of the experiment. The power is equal to  $1-\beta$  and is the probability that an experiment could detect a treatment effect if it exists (also the probability of finding truly significant results) (Cohen, 1988). Though in social research, the value of power is often set at 0.8, Tourangeau (2004) recommends power above 0.8 and in the current investigation, this line of literature was followed and a power of 0.9 was adopted.

### **3.8.3. Standard Deviation**

In Minitab, to do power and sample size calculations, having a standard deviation value is required. Unfortunately, there is no prior information on the tendency to SDR for the questions used in the current experiment, and carrying out a pilot study was infeasible. Therefore, questions that were analyzed in this dissertation for socially desirable responding are assumed to be binomial variables where a respondent either optimizes in her/his response behavior with zero tendencies to SDR or tends to SDR, with equal probabilities. Therefore, the probability that a respondent tends to SDR was assumed to be 0.5.

$p$  = the probability that a respondent tends to SDR (0.5)

$q$  = the probability that a respondent optimizes and does not tend to SDR (0.5), then it follows that the variance is:

$$\sigma^2 = p(1-p) = 0.5 \times 0.5 = 0.25 \quad [1]$$

$$\sigma = \sqrt{\sigma^2} = \sqrt{0.25} = 0.5 \quad [2]$$

And the standard deviation = 0.5.

#### **3.8.4. Effect Size**

The maximum difference is the largest difference between the means of the experimental groups. As stated earlier, conducting a pilot study was not feasible and previous research that could provide such information was not found. However, according to (Cohen, 1988, 1992) the minimum difference for a mean that can be detected between two groups is 0.2.

In power analysis, a large difference (effect size) produces a small sample size while a small difference between groups leads to big sample size. Therefore, to calculate an adequate sample size for the present experiment, the purpose was to detect a mean difference of 0.2 between the main effects. This gave a sample size of 272 replications, 34 replications for each experimental group which is equal to the group size suggested by Fowler (2004).

During the data collection, an effort was made to make sure the group size of 34 was reached, and the final achieved sample size was 387 with a minimum group size of 39 respondents, 4 subjects above the size recommended by Fowler (2004), and that produced by the effect size of 0.2. Figure 3.1 illustrates the Minitab power analysis and the relationship between the power and the mean difference.

## Minitab output

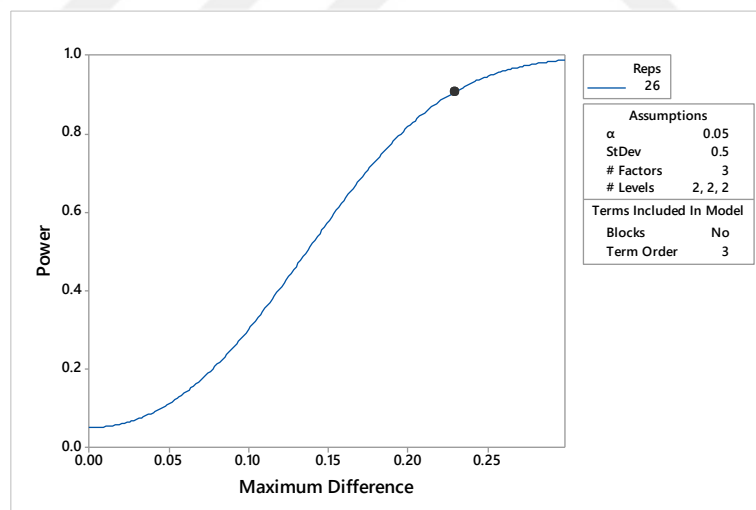
### General Full Factorial Design

$\alpha = 0.05$  Assumed standard deviation = 0.5  
Factors: 3 Number of levels: 2, 2, 2

Include terms in the model up through order: 3  
Not including blocks in the model.

| Maximum<br>Difference | Reps | Total<br>Runs | Target<br>Power | Actual Power |
|-----------------------|------|---------------|-----------------|--------------|
| 0.20                  | 26   | 208           | 0.9             | 0.91         |

Figure 3.1. Power Curve for General Full Factorial



### 3.9. Online self-Administered Questionnaire

Survey research is a vital scientific process of data gathering which is broadly reliant on a question-and-answer process. Various forms of information are gathered using



survey research tools, such as interviews and questionnaires. The main shortcomings related to the information gathered through survey research tools might be the truthfulness of respondents' responses and the extent to which questions elicit the intended information. Little can be done to make sure that the answers provided by targeted individuals are true values. In situations where accurate previous information is available, a response validity check is possible. Regarding the extent to which questions elicit the intended information, a large body of scientific research does exist and provides guidelines to ensure that questions elicit the intended information. What interests the researcher is whether the answers are true values and free from error. The online survey experiment addresses a closely related topic in this area known as social desirability or SDR which causes the response to deviate from its true value.

In self-administered questionnaires, respondents might encounter difficulties related to either question wording or information arrangement on the questionnaire (Jenkins & Dillman, 1997, cited in Wright & Barnard 1978). To avoid these problems, the online questionnaire for this dissertation was designed according to the guidelines suggested in the survey research methodology. Question content-related problems include jargon, slang, abbreviation, ambiguity, confusion, vagueness, emotional language, prestige bias, double-barreled questions, leading questions, questions beyond the respondent's abilities, asking about distant future questions, overlapping or unbalanced response options, double negatives, salience effect, and frame reference effect (Christian & Dillman, 2004; Jenkins & Dillman, 1993; Neuman, 2014; Wright & Barnard, 1975), and were avoided as much as possible during writing the questions intended to measure the tendency to SDR.

In terms of questionnaire organization, the questions were arranged in a vertical relay which is the norm format in survey methodology (Christian & Dillman, 2004; Jenkins & Dillman, 1993) and the response lists were also presented vertically.

The questionnaire<sup>14</sup> consisted of 35 closed-ended questions in total. The first section of the questionnaire consisted of socio-demographic questions about age, sex, level of education, etc. This section is followed by the major component of the online questionnaire consisting of two groups of questions. One group of questions were addressing issues related to focus during online classes. Students were asked what type of device they use to connect to online classes, their attention during online classes, whether they looked up answers to online exam, and their use of social media during online classes. Another group of questions asked the students how was their time management during the distance education process, their feelings towards the distance education process, their physical activity for health and fitness purposes, whether they smoke, drink, etc.

Questions were designed with the assumption that they could apply to everyone (rather than filtered to a specific subgroup of respondents), and “None” was provided as a response category where appropriate. A detailed explanation endorsing this approach is provided by Bradburn et al. (2004, p. 110) to make questions less threatening, but the purpose, in this case, was to avoid losing cases.

As for the response categories, there were two types: (1) Forced choice response categories that range between two to six responses (2) Short open-ended answers for age, height, and weight.

The third section of the questionnaire included a Turkish version (7-item) of the Marlowe-Crowne SDR scale on the basis of which respondents were grouped into two groups and subsequently compared their tendency to SDR across a range of items.

For practical reasons related to the length of the original 33-item Marlowe-Crowne SD scale, the 7-item Turkish version was adopted. This short 7-item SD scale was selected for being the only previously tested Turkish version of the Marlowe-Crowne SDR scale.

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<sup>14</sup> The questionnaire did not include grid and agree/disagree type of questions as it is often very difficult to disentangle the SDR bias from the acquiescence (ye-nay saying) bias.

Identical short scales in English were developed by (Fischer & Fick, 1993; Ramanaiah et al., 1977; Reynolds, 1982; Strahan & Gerbasi, 1972). The 7-item scale contains truly keyed items that were presented in a matrix format. A limitation of the scales that are used to measure social desirability is that they fail to differentiate between respondents who are true to social norms, those who have honest inflated self-view, and those who tend to intentionally present false positive impressions (Tourangeau & Yan, 2007). Despite this, the Marlowe-Crowne SDR scale is the widely used procedure to measure the tendency to SDR.

The final section of the questionnaire comprised single-item measures intended to measure introduction interest, topic sensitivity, and the time it took to fill out the questionnaire. The fundamental reason that these items were placed at the bottom of the questionnaire is that if they appear before the questions intended to measure the tendency to SDR, their influence on response behavior is unknown. The background questions, such as age, sex, etc. appeared before the items of interest.

Despite it being difficult to set an exact length to distinguish a short questionnaire from a long one, the current questionnaire was relatively short as it consisted of only 4-pages with 35 closed-ended questions.

### **3.9.1. Development of the Online Questionnaire**

The questionnaire was prepared using Google Forms, a freely available survey tool that provides features including dividing the questionnaire into sections (blocks in the online survey terminology), shuffling response categories, arranging questions randomly, and randomly assigning respondents into different blocks of the questionnaire. For the current case, the questionnaire was divided into eight blocks that consisted of the same questions and response categories but differ in the survey topic and the sponsor stated in the introductory statements and the order in which the response options were presented.

### **3.9.2. Pre-testing**

The pre-testing of this survey experiment aimed at ensuring two things: First, as the validity of experimental research depends on how well the treatments were manipulated, the purpose was to make sure that respondents were able to detect the difference between the levels of the independent variables (i.e. survey topic and sponsor). To do so, I distributed two printed versions of the survey introductory statements to a group of Hacettepe University medical students at the Sıhhiye Campus. After reading the two introductory statements, I asked students follow-up questions to ensure that they could detect the difference between the two introductory statements.

Second, the pre-test also aimed to ensure that questions were clear enough to understand and elicit the intended information. Conducting a field pre-test was not practically feasible, instead, I distributed printed questionnaires to the same group of Hacettepe University medical students and I asked them to highlight anything that they find it to be unclear.

### **3.9.3. Approval and Related Ethical Issues**

The online questionnaire was subjected to many rounds of ethical commission approvals as the questionnaire content and the target population changed several times. Initially, the questionnaire was prepared as a paper-based self-administered questionnaire that was planned to administer to the Hacettepe University students. Nevertheless, on the 8<sup>th</sup> of September 2020, the data collection application (file number 85844849-010.99/00001207308) failed to receive the Hacettepe University Ethics Commission approval because of reasons including measures around the COVID-19 pandemic. Also, for reasons related to the COVID-19 pandemic Hacettepe University stopped face-to-face classes, therefore the proposed mode of data collection was not possible.

The target population was changed and the questionnaire was decided to administer to the Atılım University students who were attending some face-to-face classes at that time. On 27<sup>th</sup> October 2020, the study application (file number E-85844849-010.99-00001301179) received the Hacettepe University Ethics Commission approval but this time the data collection did not take place as the Atılım University rejected the data collection application.

In a new attempt, the target population changed again and the intention was to employ international students in Turkey, particularly, the recipients of the YTB scholarships as the target population. The questionnaire was transformed into an online questionnaire and on the 12<sup>th</sup> of January 2021, the online questionnaire application (file number E-35853172-010.99-00001403471) was ethically approved. But unfortunately, the number of students allocated to employ as respondents was far below the required sample size (50 students).

The final round of application was made once again with the Hacettepe University students as the target population, but to receive the questionnaire in an online format. The Ethics Commission approved the study application file on the 27<sup>th</sup> of April 2021 (file number E-35853172-010.99-00001563988).

The questionnaire was reviewed and approved by the Hacettepe University Ethics Commission. The consent question was presented inside each experimental questionnaire version and respondents were free to participate in the survey. The survey purpose, topic, and sponsor were clearly stated in the survey introductory statement for each experimental questionnaire version, except for the ultimate scientific purpose.

Also, it was explicitly stated in the survey introduction that the survey participation was completely voluntary and respondents could leave the questionnaire at any time.

Anonymity was also ensured as the questionnaire did not include personally identifiable information, such as names, ID numbers, emails, or anything else that could define an identity. The researcher protected the confidentiality of the data collected and adhered not to sharing it with a third party.

### **3.10. Data Collection Procedure**

The online survey experiment was executed between 5<sup>th</sup> May and 7<sup>th</sup> July 2021 and the link was sent to the Hacettepe University students (Undergraduate, Master's, and Ph.D.) via their emails by the Hacettepe University Press and Public Relations office. According to the Hacettepe University Press and Public Relations office, the email list consisted of 62,788 current students and probably some graduates<sup>15</sup>. Only 32 questionnaires were received and some of the students did not receive the e-mail due to technical problems. A reminder contact was sent on June 22 and 37 responded. To boost the response rate, a group of Hacettepe University academicians was contacted and they shared the link with the students in their classes. Table 3.7 shows the departments of the lecturers who were contacted and the number of students in each class. The final number of completed questionnaires was 387.

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<sup>15</sup> The Hacettepe University Press and Public Relations notified me during the data collection that the list may have included graduates but don't have information on the extent of this.

Table 3.7. The Departments of the Academicians who shared the Survey Link with their Students

| Department                                  | No of students |
|---------------------------------------------|----------------|
| Social work                                 | 134            |
| Communication                               | 51             |
| Nursing                                     | 345            |
| Economics                                   | 110            |
| Sociology                                   | 254            |
| Dentistry                                   | 36             |
| Food engineering                            | 120            |
| Political science and public administration | 6              |
| Translation                                 | 280            |
| Total                                       | 1336           |

Note: The link was also shared with academic staff from three other departments but whether it was distributed to students could not be confirmed at that time.

### 3.11. Methodological Limitations

The present survey experiment has some limitations that need to be addressed. According to Couper (2000), the main limitations of web surveys are high under-coverage and nonresponse rates. The current online survey experiment was not free from these errors. Though the respondents were randomly assigned to the experimental treatments, they were not a representative sample. Furthermore, it was more likely that the email list contained ineligible units, such as graduates.

On the other hand, there were nonresponse errors, for example, respondents who received the link and found the survey invitation interesting were more likely to join the survey while those who did not receive the link had zero chance to join the survey.

In the present data, the calculation of a response rate is complicated. In the online survey experiment, the respondents are not a representative sample of the target population and even a great number of the respondents were selective. The calculation of the American Association for Public Opinion Research (AAPOR) response rate is complex here. There is much information missing, for example, it was not possible to follow up on respondents and check who received the survey link in their E-mails and who did not. Who opened the mail and who did not? Who directly received from the University and who received from a lecturer?

Finally, although the experiment was conducted in a field setting, confounding sources of variation cannot be excluded. These limitations are the overall limitations of the online survey experiment.

### **3.12. Use of Secondary data**

Two main limitations related to the online survey experiment prompted the use of secondary data in this dissertation: (1) experimentally, it was important to limit fatigue and boredom amongst respondents which could act as confounding variables. Because adding a rating to each question could double the length of the questionnaire (2) Also, the questionnaire prepared for this dissertation did not include behaviors (such as sexual behavior and drug use as) that are traditionally considered sensitive in the survey research literature. For these reasons, the use of secondary data was the feasible alternative to inform areas in which the experimental data could not fully inform.

#### **3.12.1. Source of Secondary Data**

The secondary data<sup>16</sup> that this dissertation uses came from the 2012 Argentina Global School-based Health Survey (abbreviated as the 2012 Argentina GSHS). The

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<sup>16</sup> This dissertation uses data from the Global School-Based Student Health Survey (GSHS). GSHS is supported by the World Health Organization and the US Centers for Disease Control and Prevention.



GSHS is an individual survey that is conducted in many countries by the ministries of health and education and supported by the world health organization WHO and the US Centers for Disease Control and Prevention CDC. Compared to the other GSHS data available at the WHO microdata repository site, the 2012 Argentina GSHS has a large sample size and all sensitive questions were asked to the respondents.

The 2012 Argentina GSHS collected data on health behavior and protective factors related to the leading causes of morbidity and mortality among children and adults worldwide. The survey covered adolescents aged between 13 and 17 years old and encompassed ten modules that address alcohol use, dietary behaviors, drug use, hygiene, mental health, physical activity, protective factors, sexual behaviors, tobacco use, violence, and unintentional injury.

The GSHS utilized a two-stage cluster sample design to obtain representative data on students in intermediate and secondary education in Argentina. First, the schools were selected with the use of probability proportional to the enrollment size. At the secondary stage, classes were randomly selected and all students in selected classes were eligible to join the survey. The 2012 Argentina GSHS had a sample size of 28,368 with a response rate of 91% at the school level and 79% at the individual level.

The 2012 Argentina GSHS data differs from the experimental data in that the data were collected from two populations that differ in sample size, culture, age, and different sampling techniques were also used. However, the two datasets have the self-administered mode of data collection in common.

Even though estimation was the primary objective of the 2012 Argentina GSHS, research hypotheses can be tested based on data elicited through sample surveys like the 2012 Argentina GSHS. The 2012 Argentina GSHS dataset enables me to achieve the third objective of this dissertation.

### **3.13. Preparation of Data for Analysis**

#### **3.13.1. Primary Data**

To gauge the tendency to SDR, I used the 14 items presented in Table 3.8. Primarily, the items are susceptible enough to SDR and it is easier to determine the direction of socially desirable responding. For each item that addresses socially desirable behavior, I coded 1 for the response categories that were rated as desirable and the other response categories 0. For example, when asked, “During the 2020-2021 fall semester, how many hours a day do you read for academic purposes?” I coded 1 the response option “5 or more hours” and all other response categories 0 (Table 3.8). Likewise, for items that pose questions about undesirable behaviors, I coded 1 for the response categories that were rated as desirable and the other response categories 0. For instance, when asked, “In general, do you browse social media platforms like Facebook, Instagram, or Twitter during online classes?” I coded 1 for the response option “No” and 0 for “Yes”.

For the item “Are you currently in a romantic relationship?” determining the direction of a socially desirable responding was complex compared to the other items. The complexity comes from the differences in the direction of socially desirable responses by sex. According to the literature, women tend to under-report the number of sexual partners, and men are inclined to over-report. In a study by Tourangeau & Smith (1996) men reported an average number of 2.9 opposite-sex sexual partners while females reported 1.6 male sexual partners. Similarly, T. W. Smith (1992) found that the number of female sexual partners reported by men exceeded the number of male sexual partners reported by women, especially, among unmarried groups. From a cultural perspective, this might be because women receive more negative judgment than men (England & Bearak, 2014; T. W. Smith, 1992). Therefore, women may not consider desirable what men view as a desirable thing. As a result, the direction of socially desirable responding should be evaluated from the point of view of both sexes. When asked, “Are you currently in a romantic relationship” I coded 1 for “No” and 0 for “Yes” for females. Contrarily, 1

for “Yes” and 0 for “No” for males (see Table 3.8). In the subsequent analysis, I used the dichotomous format of these items.

Table 3.8. Dummy Coding of the Items from the Online Experiment

| No | Item                                                                                           | Response categories (responses coded as socially desirable are in bold)                                                                                   | Re-coded dummy variable                                                                       |
|----|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1  | What is the main reason you chose your field of study?                                         | <b>a) To help the community I live within</b><br>b) I like the field<br>c) My parents recommended<br>d) Financial reasons<br>e) Social status<br>f) Other | Joined field of study to help the community<br>No=0<br>Yes=1                                  |
| 2  | On average, how much time do you allocate for distance education per day?                      | a) 1-2 hours<br>b) 3-4 hours<br><b>c) 5 hours or more</b>                                                                                                 | On average, allocates 5 hours or more for distance education per day<br>No=0<br>Yes=1         |
| 3  | In general, how would you evaluate your time management during the distance education process? | a) Not good<br>b) Good<br><b>c) Very good</b>                                                                                                             | Evaluates time management during the distance education process as very good<br>No=0<br>Yes=1 |
| 4  | In the 2020-2021 fall semester, how would you rate your academic cumulative GPA?               | <b>a) Excellent</b><br><b>b) Very good</b><br>c) Good<br>d) Fair<br>e) Poor                                                                               | Have either very good or excellent CGPA<br>No=0<br>Yes=1                                      |
| 5  | During online classes, how often do you join classroom discussions?                            | <b>a) Every time</b><br>b) Sometimes<br>c) Never                                                                                                          | Every time joins the online class discussion<br>No=0<br>Yes=1                                 |
| 6  | In general, how attentive are you during online classes?                                       | <b>a) I listen with attention every time</b><br>b) I usually listen carefully<br>c) I am often distracted<br>d) I do not listen carefully                 | Listens with attention every time during online classes<br>No=0<br>Yes=1                      |

Table 3.8. Cont.

| No | Item                                                                                                                                                                                                      | Response categories                                                           | Re-coded dummy variable                                                                                        |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 7  | During the 2020-21 Fall semester, how many hours a day do you spend reading for academic purposes?                                                                                                        | a) None<br>b) 1-4 hours<br>c) <b>5-8 hours</b><br>a) <b>9 hours and above</b> | Reads 5 or more hours a day for academic purposes<br><br>No=0<br><br>Yes=1                                     |
| 8  | In the last month, how many days a week did you do physical activity on average to stay healthy and fit?                                                                                                  | b) None<br>c) One day<br>d) Two days<br>e) <b>Three days or more days</b>     | Did physical activity 3 or more days a week<br><br>No=0<br><br>Yes=1                                           |
| 9  | In general, do you browse social media platforms like Facebook, Instagram, or Twitter during an online class?                                                                                             | a) <b>No</b><br>b) Yes                                                        | Use social media during online classes<br><br>Yes=0<br><br>No=1                                                |
| 10 | During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not? | a) <b>No</b><br>b) Yes                                                        | Looked up answers to questions in an online exam<br><br>Yes=0<br><br>No=1                                      |
| 11 | In the last 24 hours, have you spent time without wearing a mask with someone who is not currently living in the same home or dormitory as you?                                                           | a) <b>No</b><br>b) Yes                                                        | Spent time without masks with some not currently living in the same home or dormitory<br><br>Yes=0<br><br>No=1 |
| 12 | Have you ever smoked cigarettes, even once?                                                                                                                                                               | a) <b>No</b><br>b) Yes                                                        | Ever smoked cigarettes, even at once<br><br>Yes=0<br><br>No=1                                                  |
| 13 | Have you ever drunk alcohol, even at once?                                                                                                                                                                | a) <b>No</b><br>b) Yes                                                        | Ever drunk alcohol, even at once<br><br>Yes=0<br><br>No=1                                                      |

Table3.8. Cont.

| No | Item                                          | Response categories | Re-coded dummy variable                                                                                                            |
|----|-----------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 14 | Are you currently in a romantic relationship? | a) No<br>b) Yes     | Currently in a romantic relationship<br>For females,<br><br>Yes=0<br><b>No=1</b><br><br>For males,<br><br>No = 0<br><b>Yes = 1</b> |

### 3.13.2. Secondary Data

First, to evaluate the sensitivity of survey items of the 2012 Argentina GSHS, it is necessary to rank items from less sensitive to more. One way of doing this is using item nonresponse rates. In line with the extant body of literature in this area, items with high nonresponse rates are deemed to have high sensitivity. The 2012 Argentina GSHS dataset available on the WHO NCD Microdata Repository site includes 58 items in total, where 53 items were grouped under ten modules<sup>17</sup>: alcohol use, dietary behaviors, drug use, hygiene, mental health, physical activity, protective factors, sexual behaviors, tobacco use, violence, and unintentional injury.

I adopted the item nonresponse rate as a proxy measure of item sensitivity and I examined whether an association exists between item sensitivity and the tendency to respond in the socially desirable direction. However, before I embark on the analysis of how the sensitivity of survey items influences the tendency to respond in the socially

<sup>17</sup> The modules are adopted from the WHO microdata repository and items were grouped under these modules.

<https://extranet.who.int/ncdsmicrodata/index.php/catalog/74/study-description>

desirable direction, there are some limitations to address. First of all, the 2012 Argentina GSHS includes a large number of items and all items may not be eligible for this analysis.

The item inclusion was mainly based on the items that the research on behavior reporting indicated to be susceptible to socially desirable responding. For example, respondents tend to over-report handwashing behavior (Contzen et al., 2015; Ram, 2013) and physical activity (Lichtman et al., 1992) while they underreport drug use (Bone et al., 2016), alcohol (Livingston & Callinan, 2015; Morrow-Tlucak et al., 1989; Stockwell et al., 2004), and sexual behavior (T. W. Smith, 1992; Tourangeau & Smith, 1996). Following this line of research, in this analysis, I made sure to include the items that address the aforementioned behaviors.

Also, taking into account the topic that the item addresses, I grouped the items into two groups: items addressing socially desirable behaviors and items addressing undesirable behaviors. Then, I excluded (1) all items that address behaviors in which the desirability or undesirability is hard to judge like “During the past 7 days, how many days did you walk or ride a bicycle to or from school?” (2) Based on these criteria, 20 items that ask about socially undesirable behaviors and 8 items that address desirable behaviors were selected for the present analysis (see Table 3.9).

Although the item “days others smoked in your presence” is a sensitive question, I excluded it here because it represents the exposure of the respondent to behavior, rather than the behavior of the respondent.

Regarding the determination of socially desirable response categories, SDR has two dimensions: (1) to underreport undesirable behaviors like drug use and alcohol, and (2) to over-report desirable behaviors, such as teeth brushing, and washing hands before eating and after toilet.

Table 3.9. Dummy Coding of the Items from the 2012 Argentina GSHS

| Item                                                          | The socially desirable response category | Re-coded dummy variable label<br>(Desirable category=1, other categories=0)  |
|---------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------|
| <b>Desirable behaviors</b>                                    |                                          | <b>(Yes=1 No=0)</b>                                                          |
| Times brush teeth per day.                                    | 3 or more times                          | Brush teeth 3 times a day or more<br>(Yes=1 No=0)                            |
| Wash hands after toilet in the past 30 days.                  | Always                                   | Always wash hands after toilet in the past 30 days<br>(Yes=1 No=0)           |
| Used soap on hands in the past 30 days.                       | Always                                   | Always used soap on hands in the past 30 days.<br>(Yes=1 No=0)               |
| Wash hands before eating in the past 30 days.                 | Always                                   | Always wash your hands before eating in the past 30 days.<br>(Yes=1 No=0)    |
| Number of days Active 60 min plus in the past 7 days.         | 3 or more days                           | Physically active for 3 days or more in the last 7 days.<br>(Yes=1 No=0)     |
| Number of days went to physical education each week.          | 3 or more days                           | Went to physical education 3 or more days each week.<br>(Yes=1 No=0)         |
| Used condom last intercourse.                                 | Yes                                      | Used condom last intercourse<br>(Yes=1 No=0)                                 |
| Used birth control last intercourse.                          | Yes                                      | Used birth control last intercourse<br>(Yes=1 No=0)                          |
| <b>Undesirable behaviors</b>                                  |                                          | <b>(Yes=0, Never/No=1)</b>                                                   |
| Number of days miss school no permission in the past 30 days. | Zero                                     | Missed school without permission in the past 30 days.<br>(Yes=0, Never/No=1) |
| Days smoked in the past 30 days.                              | Zero                                     | Smoked past 30 days.<br>(Yes=0, Never/No=1)                                  |
| Used other tobacco in the past 30 days.                       | Zero                                     | Used other tobacco in the past 30 days.<br>(Yes=0, Never/No=1)               |
| Age first tried cigarettes.                                   | Never smoked                             | Ever smoked cigarettes.<br>(Yes=0, Never/No=1)                               |

Table 3.9. Cont.

| Item                                            | The socially desirable response category | Re-coded dummy variable label<br>(Desirable category=1, other categories=0) |
|-------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------|
| Times attempted suicide in the past 12 months.  | Zero                                     | Attempted suicide in the past 12 months.<br>(Yes=0, Never/No=1)             |
| Ever make a suicide plan in the past 12 months. | No                                       | Ever make a suicide plan in the past 12 months.<br>(Yes=0, Never/No=1)      |
| Ever considered suicide in the past 12 months   | No                                       | Ever considered suicide in the past 12 months<br>(Yes=0, Never/No=1)        |
| Number of drinks in the past 30 days.           | Zero                                     | Drank in the past 30 days.<br>(Yes=0, Never/No=1)                           |
| Number of times drunk during life.              | Zero                                     | Ever been drunk.<br>(Yes=0, Never/No=1)                                     |
| Age first drink alcohol.                        | Never drank                              | Ever drunk alcohol.<br>(Yes=0, Never/No=1)                                  |
| Number of troubles as a result of drinking.     | Zero                                     | Ever been in trouble as a result of drinking.<br>(Yes=0, Never/No=1)        |
| Lifetime sexual partners.                       | Zero                                     | Have sexual partners.<br>(Yes=0, Never/No=1)                                |
| Age at first sexual intercourse.                | Never had sexual intercourse             | Ever had sex.<br>(Yes=0, Never/No=1)                                        |
| Times in fight in the past 12 months            | Zero                                     | Fought in the past 12 months.<br>(Yes=0, Never/No=1)                        |
| Times attacked in the past 12 months.           | Zero                                     | Attacked in the past 12 months.<br>(Yes=0, Never/No=1)                      |
| Number of days bullied in the past 30 days.     | Zero                                     | Bullied in the past 30 months.<br>(Yes=0, Never/No=1)                       |
| Times injured in the past 12 months.            | Zero                                     | Injured in the past 12 months.<br>(Yes=0, Never/No=1)                       |
| Age first tried drugs.                          | Never used drugs                         | Ever used drugs.<br>(Yes=0, Never/No=1)                                     |
| Times used marijuana past 30 days.              | Zero                                     | Used drugs past 30 days.<br>(Yes=0, Never/No=1)                             |
| Times used amphetamines lifetime.               | Zero                                     | Ever used amphetamines.<br>(Yes=0, Never/No=1)                              |



The items that address socially desirable behaviors are categorical variables. For these items, I adopted the higher categories, such as “brushing teeth 3 times or above per day” and “always” to be the socially desirable response. For undesirable behaviors, there are nominal and categorical items. For categorical items, I adopted the lower frequency, such as “zero” for the “number of drinks past 30 days”. For nominal items, I adopted the “no” response category to be the socially desirable response. Then, I transformed all the items into binary by coding the desirable response category as “1” and all other response categories as “0”.

Also, I used a second approach to analyzing item sensitivity and SDR. According to Gnambs & Kaspar (2014) the item nonresponse rate as a measure of the sensitivity of survey items does not take into account the normative differences of the survey items. Gnambs & Kaspar (2014) derived an objective sensitivity index in their meta-analysis study on the disclosure of sensitive behaviors across self-administered modes. The researchers investigated the item-nonresponse in the USA Youth Risk Behavior Survey (YRBS) 2001-2011.

For each sensitive item, they used the estimate of the percentage of item-nonresponse rate. To account for normative differences in behaviors, they calculated item sensitivity as the odds ratio of missing responses to the number of affirmative responses (where respondents agreed to behaviors that are deemed socially undesirable). Then, they cross-validated the item-sensitivity indices for behaviors on substance use that they derived from the Youth Risk Behavior Survey with indices derived from the Monitoring the Future studies (MTF; Johnston, Bachman, O’Malley, & Schulenberg, 2011) and the National Surveys on Drug Use and Health (NSDUH). The sensitivity rank of the YRBS is highly correlated with those of the MTF and NSDUH. However, Gnambs & Kaspar (YEAR) included in their analysis only socially undesirable behaviors. In this dissertation, an affirmative response was adopted either reporting a nonzero frequency or reporting

“yes” as a response. Therefore, the objective sensitivity index is only applicable to undesirable behaviors.

To examine whether an association exists between the sensitivity indices and the proportions of responding in the socially desirable direction. The sensitivity index is complementary to the proportions of responding to the socially desirable direction, and therefore, its association with the proportions (p) of SDR direction could be specious as the two indicators are complementary figures as in the formula below.

$$\text{Sensitivity Index} = \frac{q/(1-q)}{p/(1-p)} \quad [3]$$

Therefore, due to the nature of the association between the two indicators, using them on the same sample could be misleading. To overcome this limitation, I split the 2012 Argentina Sample (28,368) into two equal random samples (14,184 each) using IBM SPSS. The split procedure was carried out using the syntax below.

```
COMPUTE newvar=MOD ($CASENUM, 2) .
```

After the sample split, the proportions (p<sub>1</sub>) of responding in the socially desirable direction are no longer directly related to the sensitivity indices as they come from two different samples and the above formula becomes like this.

$$\text{Sensitivity index} = \frac{q/(1-q)}{p_2/(1-p_2)} \quad [4]$$

Although items that addressed desirable behaviors were not included in this analysis, the affirmative response could be a socially desirable response, for example, the “yes” response category is an affirmative response and a socially desirable response to the question “the last time you had sexual intercourse, did you or your partner use a condom?”

as wearing a condom is socially desirable behavior. I operationalized a desirable response and affirmative response as in Table 3.10.

Table 3.10. Operationalization Summary

|                      |                          |
|----------------------|--------------------------|
| Affirmative response | Yes or nonzero frequency |
| Desirable response   | No or zero frequency     |

To produce the sensitivity indices and the proportions of respondents who responded to the desirable direction, I re-coded the response categories of each item as “1” for the proportion of respondents who responded in the desirable direction, “2” for the proportion of respondents who responded in the undesirable direction, and “3” for missing values. Then I produced their weighted estimates (see Table 3.11).

**Item sensitivity index (odds ratio of missing responses to the affirmative responses) =**

$$\frac{\text{percentage of item nonresponse}/(1-\text{percentage of item nonresponse})}{\text{percentage of affirmative responses}/(1-\text{percentage of affirmative responses})} \quad [5]$$

Table 3.11. Re-coded Variable

|  |                                          | How many days smoked past 30 days |            |                  |
|--|------------------------------------------|-----------------------------------|------------|------------------|
|  |                                          |                                   | Percentage | Unweighted Count |
|  | The proportion of SD response categories | Zero days                         | 85.7%      | 11909            |
|  | The proportion of undesirable direction  | 1-30 days                         | 12.6%      | 2012             |
|  | Missing proportion                       | Missing                           | 1.6%       | 263              |
|  | Total                                    |                                   | 100.0%     | 14184            |

### **3.14. Statistical Procedures**

In this dissertation, I used IBM SPSS Statistics Version 26 and Minitab Version 17 to analyze the data. In the paragraphs that follow, I addressed all the statistical procedures I used.

#### **Chi-square**

The Chi-square test is used to compare frequency data in one of two ways. First, to examine whether two sets of frequency counts are independent of each other (this is known as the chi-square test of independence). Second, to examine whether the observed data matches a hypothetical model (Hinton et al., 2014; R. M. Warner, 2013). In the primary data, I used the chi-square test of independence to examine whether the distribution of socially desirable response categories is independent of the survey topic and the serial position of socially desirable categories on the response list.

#### **t-test**

The t-test is a hypothesis test procedure used to compare whether the mean of a sample is different from a hypothesized mean, the means of two independent samples differ from each other, or the means of two related samples differ (George & Malley, 2019; Jim Frost, 2020). In the present dissertation, I used the t-test to compare the means of independent groups (such as to compare the average reported number of socially desirable response categories across 14 items by whether the respondent scored high or low on the Marlowe-Crowne SDR short scale).

#### **2-Sample Poisson Rate Test**

The dependent variable is a count variable and the normality assumption might be violated. As a result, the t-tests might not provide reliable results. To guard against this, I also used a 2-sample Poisson rate test to compare whether the average rate of desirable

response categories across 14 items varies between groups. A 2-sample Poisson rate test is used to determine whether the rates of two independent groups are different (Jim Frost, 2020).

### Analysis of Variance

Analysis of variance abbreviated as ANOVA is another hypothesis test like the t-test used to investigate the differences between means of groups. Nonetheless, ANOVA enables the comparison of the means of more than two groups (Foster et al., 2006; George & Malley, 2019). In addition, ANOVA allows one to examine the effect of more than one independent variable and reveal their interaction. When the analysis is involved only a single independent variable, ANOVA is termed one-way ANOVA and when there are two or more independent variables it is termed factorial ANOVA. In the present research, to examine the effects of introduction interest and perceived topic sensitivity on the tendency to choose socially desirable response categories across a range of 14 items, I used one-way ANOVA. Also, I used factorial ANOVA to examine the effects of survey topic and sponsor on the tendency to choose socially desirable response categories across a range of 14 items.

### Logistic Regression

Logistic regression is used when the outcome variable is binary. In logistic regression, the purpose is to predict the probability of a subject falling into a specific group ( $y=1$ ). The present analysis aims to examine the probability of respondents choosing a socially desirable response category as a function of predictor variables. Therefore, the probability to choose the socially desirable response categories was modeled. The relationship between the dependent and the independent variables is non-linear. To linearize this relationship, the logistic regression adopts logit transformation (Pampel, 2000) as shown below:

$$L_i = \ln[P_i/(1 - P_i)] \quad [6]$$

I used logistic regression both in the primary data and secondary data analysis. For the primary data analysis, I run multivariable logistic regression models to examine whether the tendency to choose socially desirable response categories is more likely in some items under the experimental factors. For the secondary data analysis, I run complex sample multivariable logistic regression models to examine whether respondents with more missing responses have a higher tendency to respond in the socially desirable direction.

In OLS regression, one way to evaluate the model effectiveness is how strong the relationship between the outcome variable and the explanatory variables. In logistic regression, there are alternative measures to the linear regression  $R^2$ . These alternatives are analogous to  $R^2$  and are known as pseudo- $R^2$  (Veall & Zimmermann, 1996). The  $R^2$  value indicates the portion of the variance in the dependent variable accounted for an explanatory variable (also reflects the strength of the relationship between the variables) (George & Malley, 2019; Pampel, 2000). However, the pseudo  $R^2$  values in logistic regression are therefore, approximation of the explained variance rather than a calculated precise values. The widely used pseudo  $R^2$  are Hosmer & Lemeshow's  $R^2$  and Nagelkerke's  $R^2$ . The IMB SPSS produces Nagelkerke's pseudo-R square and I reported for all the multivariable logistic regression models.

Also, in logistic regression analysis, sensitivity and specificity measures evaluate the performance of a binary model where predicted group membership is compared to observed group membership. In general, sensitivity and specificity are used to indicate the accuracy of a test or measure (Swift et al., 2020). However, they are widely used in clinical research to evaluate the accuracy of diagnostic tests (Coughlin et al., 1992). For example, sensitivity and specificity assist in determining how accurately a screening procedure classifies people who have a disease and those who do not have the condition. Sensitivity is how well the test correctly identifies people who have the disease (also known as true positive) and specificity is how well the test identifies people who do not have the condition (also known as true negative) (Loong, 2003). In the present

dissertation, the sensitivity and specificity assess how well the logistic regression model identifies respondents' membership (respondents who responded in a socially desirable way and those who did not) based on the model. IBM SPSS produces sensitivity and specificity measures under the classification table and I reported them as well in the results.

### Poisson Regression

The Poisson regression is the standard statistical model that is utilized to predict count data that occur within a given time or space (Cameron & Trivedi, 1998; King, 1988; Roback & Legler, 2021). Count data takes discrete values, such as 0, 1, 2, 3, etc. demonstrating the number of frequencies of an event in a certain time or space. A count value can take only non-negative integers or zero. When the dependent variable is a count variable and OLS regression is applied, difficulties arise, such as OLS not restricting the predicted number of events to be positive (Coxe et al., 2009; King, 1988; Roback & Legler, 2021). But as the expected value of the count outcome increases, its distribution approaches normality and the use of OLS regression becomes possible.

Unlike the OLS regression, in the Poisson regression model, the assumption of a linear relationship between the dependent and the independent variable is not required. Also, normally distributed residuals is not needed to be met. The Poisson regression model is suitable and outperforms the OLS regression when the mean of the count-dependent variable is small (Coxe et al., 2009). On the other hand, in a Poisson regression model, a problem arises when the variance is greater than the mean, known as overdispersion. There is no cutoff point for overdispersion but according to Field (2018), overdispersion could be problematic when the dispersion parameter comes close to or is greater than 2. If the overdispersion is apparent, a common practice is the adoption of a negative binomial model which is a variant of the Poisson model. Furthermore, according to (McCullagh & FRS, 1989) the presence of moderate overdispersion could be ignored and the parameters estimated under the Poisson and negative binomial model may not differ.

In the primary data analysis, I run two Poisson regression models to examine the effect of the explanatory variables on the tendency to choose socially desirable response categories across a range of items given that the dependent variable (the reported number of socially desirable response categories across 14 items follows the Poisson distribution).

In the Poisson regression model, there is no direct analog to the  $R^2$  of the OLS regression but as the generalized linear models make use of maximum likelihood methods, a pseudo  $R^2$  is produced to evaluate the model. Although the deviance cannot be interpreted directly in relation to an ideal model (value/df=1), unlike OLS  $R^2$ , the deviance measures the poorness rather than the goodness of the model compared to the ideal model. In other words, the pseudo  $R^2$  measures the lack of fit of the model. Therefore, a considerable deviance indicates that the model departs greatly from the ideal model (Coxe et al., 2009).

Cameron & Windmeijer (1997) divided the deviance of the intercept-only model of a Poisson regression into two parts. The first is termed explained deviance, which is the deviance reduced by the explanatory variables, and the latter is termed unexplained deviance, which is the deviance that the explanatory variables failed to reduce. (Coxe et al., 2009). The difference between the two deviances represents the quantity by which the deviance is reduced after the predictors are added to the model. Then, I calculated the pseudo  $R^2$  of the Poisson regression model as follows.

$$1 - \frac{\text{deviance (fitted model)}}{\text{deviance (intercept only)}} \quad [7]$$

### 3.15. Analysis Plan

1. Descriptive summary: in the first section, I presented the background characteristics of the online survey experiment sample. Also, I presented the distribution of the



socially desirable response categories for the items intended to measure the tendency to SDR.

2. Tendency to SDR at the item level: I examined items in which the tendency to SDR may be more likely under the experimentally varied variables (topic, sponsor, and response order) in this section.
3. Systematic tendency to SDR: I investigated first whether respondents who scored high on the Marlowe-Crowne SDR short scale also reported more socially desirable responses across a range of 14 items (tendency to consistently choose socially desirable response categories across a range of items). Then, I inspected whether a systematic tendency to SDR varies by the survey topic, sponsor, response-order, perceived topic sensitivity, and introduction interest. Also, I examined whether SDR differed by respondent recruitment approach as respondent recruitment approach differed during data collection.
4. Sensitivity of survey items: in the final section, using the combination of the online survey experiment and the secondary data I inspected whether more sensitive items are greatly influenced by the tendency to SDR. A summary of the statistical procedures for each section is in Table 3.12.

Table 3.12. A Summary of the Statistical Procedures

| In what ways do survey design attributes influence the tendency to SDR in self-administered surveys? | Underpinning theoretical argument                   | Analysis                                                                                                      |                                                                                                                                          |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                      | Leverage-Salience Theory and Response-order effects | <b>SDR at the item level (binary dependent variable)</b>                                                      |                                                                                                                                          |
|                                                                                                      |                                                     | Variables                                                                                                     | Statistical procedure                                                                                                                    |
|                                                                                                      |                                                     | 1. Topic<br>2. Sponsor<br>3. Response-order                                                                   | 1. Descriptives<br>2. Chi-square tests<br>3. Multivariable logistic regression models                                                    |
|                                                                                                      |                                                     | <b>SDR across a range of items (count dependent variable)</b>                                                 |                                                                                                                                          |
|                                                                                                      |                                                     | Explanatory Variables                                                                                         | Statistical procedure                                                                                                                    |
|                                                                                                      |                                                     | 1) Introduction interest<br>2) Topic<br>3) Sponsor<br><br>4) Perceived topic sensitivity<br>5) Response-order | 1) One-Way ANOVA<br>2) Two-Way ANOVA<br>3) Independent samples t-test<br>4) 2-sample Poisson rate<br>5) Multivariable Poisson regression |
|                                                                                                      | Perceived Sensitivity                               | <b>Sensitivity of survey items (binary dependent variable)</b>                                                |                                                                                                                                          |
|                                                                                                      |                                                     | Sensitivity of survey Items                                                                                   | 1) Pearson correlation coefficient<br><br>2) Series of complex sample logistic regression analysis                                       |



## **CHAPTER 4. RESULTS**

### **4.1. Descriptive Summary**

Overall, after respondents joined the online survey experiment and accessed the Google Forms link, the final number of completed questionnaires was 387. A duplicate case was dropped from the analysis. Also, an additional 3 cases were dropped because respondents failed the attention check item. The final number of cases used in the analysis was 383.

As Table 4.1 indicates the sample was predominantly female 67%, 31% male, and 2% preferred not to say. The high participation rate of the females in the current sample is consistent with the literature. As in the current sample, W. G. Smith (2008) and Underwood et al. (2000) reported that women are inclined to participate in online surveys. Likewise, in a web-based survey of U.S. adults, Larson (2019) reported that 67% were women. However, there are some studies documenting otherwise as well (Kwak & Radler, 2002; Saxon et al., 2003).

The average age of the respondents was 22 years old and 83% were undergraduate students, 7% were master's degree students, and 2% were Ph.D. students. Due to a technical error that occurred during the data collection 8% did not report their level of education. The respondents were from different fields, but they were mainly from health (25%) and social sciences (32%).

Regarding feelings toward the distance education process, about 61% of the respondents expressed negative feelings towards the distance education process and 39% expressed positive or very positive feelings. For the type of device used to connect to the online classes, the majority 86% were using a laptop/desktop computer, 4% tablets, 10%

mobile phones, and only 1 respondent reported not being able to connect to the online classes.

Table 4.1. Background Characteristics of the Respondents

| Variable                                        |                                    | Percentage | Cases |
|-------------------------------------------------|------------------------------------|------------|-------|
| Sex                                             |                                    |            |       |
|                                                 | Female                             | 67.36      | 260   |
|                                                 | Male                               | 30.83      | 119   |
|                                                 | Prefer not to say                  | 1.81       | 7     |
| Age                                             |                                    |            |       |
|                                                 | 17-21 yrs. old                     | 46.11      | 178   |
|                                                 | 22-26 yrs. old                     | 47.67      | 184   |
|                                                 | 27 yrs. old and above              | 6.22       | 24    |
|                                                 | Mean                               | 22         |       |
|                                                 | Std. deviation                     | 3          |       |
| Field of study                                  |                                    |            |       |
|                                                 | Education sciences                 | 4.66       | 18    |
|                                                 | Engineering sciences               | 9.33       | 36    |
|                                                 | Health Sciences                    | 24.61      | 95    |
|                                                 | Social sciences                    | 32.38      | 125   |
|                                                 | Sport sciences                     | 10.62      | 41    |
|                                                 | Other                              | 18.39      | 71    |
| Level of education                              |                                    |            |       |
|                                                 | Bachelor                           | 82.64      | 319   |
|                                                 | Master                             | 6.99       | 27    |
|                                                 | PhD                                | 2.07       | 8     |
|                                                 | Missing                            | 8.30       | 32    |
| Feelings towards the distance education process |                                    |            |       |
|                                                 | Not positive                       | 61.1       | 236   |
|                                                 | Positive                           | 33.2       | 128   |
|                                                 | Very positive                      | 5.7        | 22    |
| Type of device used for online classes          |                                    |            |       |
|                                                 | I cannot connect to online classes | 0.3        | 1     |
|                                                 | Mobile                             | 9.8        | 38    |
|                                                 | Tablet                             | 4.4        | 17    |
|                                                 | Desktop computer                   | 85.5       | 330   |
|                                                 |                                    | n          | 386   |

Table 4.2 presents the proportion of respondents who chose the socially desirable response category for each of the items intended to measure the tendency to SDR. The distribution of the response categories is affected by the number of response categories and the behavior that the item measures. Having said that, it is apparent that the proportions of responding in the socially desirable direction differ by item.

Looking at Table 4.2, it seems that SDR may not be an issue in the current online survey experiment. Because when asked, “During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam?” About 54 % of the respondents responded to the socially desirable direction “no”. Intriguingly, 46 % of the respondents reported that they looked up answers to questions in an online exam. The high proportion of positive responses is probably because self-administered modes give respondents greater privacy and anonymity, and as a result, respondents tend to report more undesirable behaviors and attitudes. Males reported more positive answers compared to females but the differences were not significant.

Also, about 51% of the respondents responded to the socially desirable direction when asked “In the last 24 hours, have you spent time without wearing a mask with someone who is not currently living in the same home or dormitory as you?” this might be reflective as the data were collected at a time when Turkey was in a 17-day lockdown due to the COVID-19 pandemic.

Regarding the reported cumulative GPA, 34% responded to the socially desirable direction and reported very good or excellent CGPA while 27.5% reported that they read “5 hours and above per day” for academic purposes. Responding to desirable direction is not high in smoking and alcohol consumption 37% and 39% respectively.

Table 4.2. Distribution of Socially Desirable Response Categories per Item<sup>18</sup>

| No | Item                                                                                                                                                                                                      | Desirable response                  | %    | Cases |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|-------|
| 1  | What is the main reason you chose your field of study?                                                                                                                                                    | To help the community I live within | 18.0 | 69    |
|    | On average, how much time do you allocate for distance education per day?                                                                                                                                 | 5 hours and above                   | 27.7 | 106   |
| 2  | In general, how would you evaluate your time management during the distance education process?                                                                                                            | Very good                           | 12.5 | 48    |
| 3  | In the 2020-2021 fall semester, how would you rate your academic cumulative GPA?                                                                                                                          | Very good / Excellent               | 34.5 | 132   |
| 4  | During online classes, how often do you join classroom discussions?                                                                                                                                       | Every time                          | 12.5 | 48    |
| 5  | In general, how attentive are you during online classes?                                                                                                                                                  | Every time                          | 4.2  | 16    |
| 6  | During the 2020-21 Fall semester, how many hours a day do you spend reading for academic purposes?                                                                                                        | 5 hours and above                   | 24.5 | 94    |
| 7  | In the last month, how many days a week did you do physical activity on average to stay healthy and fit?                                                                                                  | 3 days and above                    | 40.7 | 156   |
| 8  | In general, do you browse social media platforms like Facebook, Instagram, or Twitter during an online class?                                                                                             | No                                  | 35.5 | 136   |
| 9  | During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not? | No                                  | 53.3 | 206   |
| 10 | In the last 24 hours, have you spent time without wearing a mask with someone who is not currently living in the same home or dormitory as you?                                                           | No                                  | 50.9 | 195   |
| 11 | Have you ever smoked cigarettes, even once?                                                                                                                                                               | No                                  | 36.3 | 139   |
| 12 | Have you ever drunk alcohol, even once?                                                                                                                                                                   | No                                  | 38.9 | 149   |
| 13 | Are you currently in a romantic relationship? Female                                                                                                                                                      | No                                  | 67.6 | 175   |
| 14 | Male                                                                                                                                                                                                      | Yes                                 | 58.1 | 68    |
|    |                                                                                                                                                                                                           |                                     | n    | 383   |

Note:

1. Sex is controlled for item number 14 and only 7 cases were in the “prefer not to say” category and were not included in this analysis.
2. Only the proportions of socially desirable response categories were reported here.

Exercising seems to be a desirable activity as the reasons and benefits of exercising became ubiquitous. Individuals who do not do socially encouraged activities may feel

<sup>18</sup> Three respondents were excluded from the analysis who failed to pay attention to the online attention check item.

uneasiness and give positive answers to avoid discomfort and tend to promote their picture. For example, a validation study by Brenner & DeLamater, (2014) indicated that respondents tend to exaggerate in reporting exercise activity in a web-based questionnaire. In the present sample, about 41 % reported that they do physical activity for health and fitness purposes “3 days and above” when asked, “In the last month, on average, how many days a week did you do physical activity to stay healthy and fit?”

Women and men may tend to differently misreport their number of sexual partners according to the literature. In the present investigation, I did not ask the respondents to report their number of sexual partners rather I asked them to report their lifetime romantic relationships but assumed a similar tendency might still hold. Table 4.3 shows that women reported not having any romantic relationships more often and men more frequently reported 3 and above romantic relationships. Though the differences between men and women in reporting lifetime romantic relationships are not statistically significant ( $\chi^2 = 4.23$ ,  $p = 0.238$ ). This variable has been still coded for socially desirable direction separately by sex because of differences in point estimates.

Table 4.3. Reported Lifetime Romantic Relationships by Sex

| Number of romantic relationships |              |              |              |                  |          |    |         |
|----------------------------------|--------------|--------------|--------------|------------------|----------|----|---------|
| Sex                              | 0<br>%       | 1<br>%       | 2<br>%       | 3 and above<br>% | $\chi^2$ | df | p-value |
| Female                           | 25.1<br>(65) | 28.6<br>(74) | 20.1<br>(52) | 26.3<br>(68)     | 4.23     | 3  | 0.238   |
| Male                             | 19.7<br>(23) | 23.9<br>(28) | 20.5<br>(24) | 35.9<br>(42)     |          |    |         |
|                                  |              |              |              |                  |          | n  | 376     |

Note:

1. Only 7 cases were in the “prefer not to say” category and were not included in this analysis.
2. The number of cases is given in parentheses.

In the online questionnaire, the actual time that survey took to complete per respondent was not recorded. Instead, respondents were asked to report perceived survey



time (a subjective estimation of the amount of time that the respondent devoted to filling out the questionnaire). When asked “How much time do you think this survey took?” about 48% said that the survey took “less time than expected” and 50% said, “a reasonable amount of time” whereas only 1.6% estimated the survey time as “a lot of time” (see Table 4.4).

Table 4.4 Perceived Survey Time

|                             | Number of Cases | Percentage |
|-----------------------------|-----------------|------------|
| less time than expected     | 186             | 48.6       |
| A reasonable amount of time | 192             | 50.1       |
| A lot of time               | 5               | 1.3        |
| n                           |                 | 383        |

Also, the questionnaire included an item that measured the interest of the respondents in the survey after they read the introductory statement of the survey. As Table 4.5 shows, compared to the other three groups, those who found the survey not interesting at all are smaller than the other groups.

Table 4.5 Distribution of Respondents’ Interest in the Survey Introduction

|                        | Number of Cases | Percentage |
|------------------------|-----------------|------------|
| Not interesting at all | 48              | 12.5       |
| Somewhat interesting   | 148             | 38.6       |
| Interesting            | 131             | 34.2       |
| Very interesting       | 56              | 14.6       |
| n                      |                 | 383        |

## 4.2. SDR at the Item Level

In this section, I examined whether the tendency to choose socially desirable response categories was more likely in some items than others under the experimentally varied variables of the survey topic, sponsor, and the order in which response categories were presented. I ran  $2 \times 2$  chi-square tests, and then multiple variable logistic regression

models to investigate whether the significant bivariate associations in chi-square tests hold in a multivariable model.

#### 4.2.1. Effects of Topic and Sponsor at the Item Level

Table 4.6 provides the breakdown of how the tendency to choose socially desirable answers varies by topic and sponsor at the item level. In Table 4.6, the tendency to SDR differs by topic in terms of point estimates.

Table 4.6. Distribution of Socially Desirable Response Categories by Topic and Sponsor

| Desirable Response Category                                                          | Topic <sup>1</sup>  |                     |                     | Sponsor                  |                        |                     |
|--------------------------------------------------------------------------------------|---------------------|---------------------|---------------------|--------------------------|------------------------|---------------------|
|                                                                                      | Topic 1<br>%<br>(n) | Topic 2<br>%<br>(n) | $\chi^2$ /(p-value) | Ph.D. thesis<br>%<br>(n) | HUIPS DSRM<br>%<br>(n) | $\chi^2$ /(p-value) |
| Joined the field of study to help the community                                      | 14.3<br>(28)        | 21.9<br>(41)        | 3.78<br>(0.052)     | 15.9<br>(34)             | 20.7<br>(35)           | 1.49<br>(0.223)     |
| On average, allocates 5 hours or more for distance education per day                 | 24.5<br>(48)        | 31.0<br>(58)        | 2.04<br>(0.154)     | 27.6<br>(59)             | 27.8<br>(47)           | 0.003<br>(0.958)    |
| Evaluates her/his time management during the distance education process as very good | 12.2<br>(24)        | 12.8<br>(24)        | 0.03<br>(0.862)     | 12.1<br>(26)             | 13.0<br>(22)           | 0.07<br>(0.799)     |
| Have either very good or excellent CGPA                                              | 34.2<br>(67)        | 34.8<br>(65)        | 0.01<br>(0.961)     | 34.1<br>(73)             | 34.9<br>(59)           | 0.03<br>(0.870)     |
| Every time joins the online class discussion                                         | 8.2<br>(16)         | 17.1<br>(32)        | 6.99**<br>(0.008)   | 11.7<br>(25)             | 13.6<br>(23)           | 0.32<br>(0.572)     |
| Listens with attention every time during online classes                              | 4.1<br>(8)          | 4.3<br>(8)          | 0.00<br>(0.923)     | 5.6<br>(12)              | 2.4<br>(4)             | 2.48<br>(0.116)     |
| Reads 5 or more hours a day for academic purposes                                    | 22.4<br>(44)        | 26.7<br>(50)        | 0.95<br>(0.330)     | 21.5<br>(46)             | 28.4<br>(48)           | 2.43<br>(0.119)     |
| Does physical activity 3 or more days a week                                         | 40.8<br>(80)        | 40.6<br>(76)        | 0.00<br>(0.972)     | 39.7<br>(85)             | 42.0<br>(71)           | 0.21<br>(0.650)     |
| Uses social media during online classes                                              | 37.8<br>(74)        | 33.2<br>(62)        | 0.88<br>(0.347)     | 37.4<br>(80)             | 33.1<br>(56)           | 0.74<br>(0.388)     |
| Looked up answers to questions in an online exam                                     | 48.5<br>(95)        | 59.4<br>(111)       | 4.57*<br>(0.033)    | 50.5<br>(108)            | 58.0<br>(98)           | 2.15<br>(0.143)     |

Table 4.6 Cont.

| Desirable Response Category                               | Topic               |                     |                     | Sponsor                  |                       |                     |
|-----------------------------------------------------------|---------------------|---------------------|---------------------|--------------------------|-----------------------|---------------------|
|                                                           | Topic 1<br>%<br>(n) | Topic 2<br>%<br>(n) | $\chi^2$ /(p-value) | Ph.D. thesis<br>%<br>(n) | HUIP SRMD<br>%<br>(n) | $\chi^2$ /(p-value) |
| Spent time with someone without masks in the last 24 hrs. | 50.0<br>(98)        | 51.9<br>(97)        | 0.13<br>(0.714)     | 51.4<br>(110)            | 50.3<br>(85)          | 0.05<br>(0.830)     |
| Ever smoked cigarettes                                    | 39.8<br>(78)        | 32.6<br>(61)        | 2.13<br>(0.144)     | 37.9<br>(81)             | 34.3<br>(58)          | 0.51<br>(0.475)     |
| Ever drank alcoholic drinks                               | 38.8<br>(76)        | 39.0<br>(73)        | 0.00<br>(0.958)     | 36.4<br>(78)             | 42.0<br>(71)          | 1.23<br>(0.267)     |
| Currently in a romantic relationship                      | 25.6<br>(33)        | 39.2<br>(51)        | 5.51*<br>(0.019)    | 29.5<br>(44)             | 36.4<br>(40)          | 1.35<br>(0.246)     |
| Female (no)                                               | 61.5<br>(25)        | 53.8<br>(24)        | 0.70<br>(0.402)     | 58.7<br>(37)             | 57.4<br>(31)          | 0.02<br>(0.885)     |
| Male (yes)                                                |                     |                     |                     |                          |                       |                     |
| Total                                                     | 196                 | 187                 |                     | 214                      | 169                   |                     |

1. Topic1 (focus during online classes) Topic 2 (social life of students during the distance education process of the COVID-19 pandemic).
2. The number of cases and the p-value are given in parentheses. \*p<0.05, \*\*p<0.01.

The point estimates are higher under the topic “the social life of students during the distance education process” for socially desirable response options, but only three of these are statistically significant (p-value<0.05). The three significant items are addressing different issues and do not have a common denominator. Two items are related to online learning activities: whether one looked up answers to questions in an online exam and joins online class discussions. The third item is asking about the current romantic status and when controlled for the sex variable, the Chi-square value is significant at p<0.05 for females. By survey sponsor, the tendency to SDR does not differ, but the point estimates are higher under the “HUIPS DSRM” compared to Ph.D. as a survey sponsor, which is consistent with the proposed hypothesis. However, none of the chi-square tests are significant (p-value>0.05) (see Table 4.6).

#### **4.2.2. Effect of Response-Order at the Item Level**

Looking at point estimates in Table 4.7, the tendency to SDR is greater when SDAs appeared first on the top of the response list compared to when they are at the bottom except for only one item.

For the item “Are you currently in a romantic relationship?” the direction of SDR differs by sex, the socially desirable answer is defined as “No” for females and “Yes” for males. The proportions of “yes” and “no” are greater when they appeared first at the top of the list.

The proportions of desirable answers were significantly associated ( $p < 0.05$ ) with their serial position on the response list for three items. Two items with four response options were “attention during online classes” ( $p = 0.045$ ), “the number of reading hours for academic purposes per day during the fall term 2020-2021” ( $p = 0.000$ ), and “the reason for the joined field of study” with six response categories ( $p = 0.000$ ) (see Table 4.7).

To exemplify how SDAs differ when placed at the top against the bottom of the response list, Figure 4.1 presents the distribution of the reported cumulative GPA with the response categories “poor”, “fair”, “good”, “very good”, and “excellent”. Though the frequencies of desirable responses are not significantly associated with their position on the list as in Table 4.5, the comparison presented in Figure 4.1 summarizes three important points. First, the individuals who described their GPA as excellent or poor may be small in number compared to other categories. As usual, few cases score high and low GPA scores, however, it is also very common that respondents tend to escape from the extreme points as a large body of survey methodology shows. This is obvious in the current case where only 22 (12%) respondents out of 189 reported either excellent or poor cumulative GPA in the first group while in the second group 24 (12%) cases reported excellent or poor cumulative GPA.

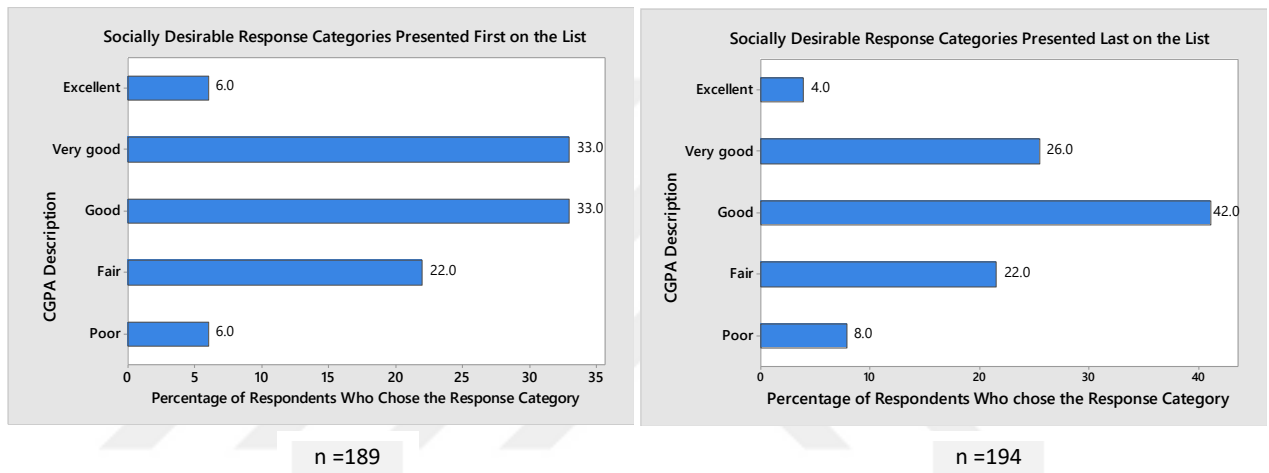
Table 4.7. Distribution of Socially Desirable Response Categories by the Response Order

| Item                                                                                    | SDAs at Bottom<br>of the list % (n) | SDAs on the Top of<br>the list % (n) | $\chi^2$<br>(p-value) |
|-----------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------|-----------------------|
| Joined field of study to help the community                                             | 9.8<br>(19)                         | 26.5<br>(50)                         | 17.99***<br>(0.000)   |
| On average, allocates 5 hours or more for<br>distance education per day                 | 24.2<br>(47)                        | 31.2<br>(59)                         | 2.34<br>(0.126)       |
| Evaluates her/his time management during the<br>distance education process as very good | 9.8<br>(19)                         | 15.3<br>(29)                         | 2.69<br>(0.101)       |
| Have either very good or excellent CGPA                                                 | 29.9<br>(58)                        | 39.2<br>(74)                         | 3.63<br>(0.095)       |
| Every time joins the online class discussion                                            | 12.9<br>(25)                        | 12.2<br>(23)                         | 0.05<br>(0.832)       |
| Listens with attention every time during online<br>classes                              | 6.2<br>(12)                         | 2.1<br>(4)                           | 3.96*<br>(0.047)      |
| Reads 5 or more hours a day for academic<br>purposes                                    | 14.9<br>(29)                        | 34.4<br>(65)                         | 19.54***<br>(0.000)   |
| Does physical activity 3 or more days a week                                            | 36.6<br>(71)                        | 45.0<br>(85)                         | 2.78<br>(0.130)       |
| Uses social media during online classes                                                 | 32.0<br>(62)                        | 39.2<br>(74)                         | 2.16<br>(0.141)       |
| Looked up answers to questions in an online<br>exam                                     | 49.0<br>(95)                        | 58.7<br>(111)                        | 3.67<br>(0.055)       |
| Spent time with someone without masks in the<br>last 24 hrs.                            | 53.6<br>(104)                       | 48.1<br>(91)                         | 1.14<br>(0.285)       |
| Ever smoked cigarettes                                                                  | 40.7<br>(79)                        | 31.7<br>(60)                         | 3.34<br>(0.068)       |
| Ever drank alcoholic drinks                                                             | 38.7<br>(75)                        | 39.2<br>(74)                         | 0.0720<br>(0.789)     |
| Currently in a romantic relationship                                                    | 65.2<br>(86)                        | 70.1<br>(89)                         | 0.72<br>(0.397)       |
| Female (No)                                                                             | 55.2<br>(32)                        | 60.1<br>(36)                         | 0.41<br>(0.522)       |
| Male (yes)                                                                              |                                     |                                      |                       |
| Number of cases                                                                         | 194                                 | 189                                  | 383                   |

Note. The number of cases and the p-value are given in parentheses \*p<0.05, \*\*p<0.01, \*\*\*p<0.001.

Second, the figure clearly illustrates that the selection of desirable answers slightly increased when they come first on the list. Likewise, the selection of socially less desirable answers increased when they appeared first on the response list.

Figure 4.1. Distribution of Reported Description of the CGPA by the Response-Order Presentation



#### 4.2.3. Investigating the Tendency to Choose Desirable Response Category in Multivariable Logistic Regression Models

In this section, I focus on items that I found to be significantly affected by survey features according to bivariate analysis in the previous section. In Table 4.6, the tendency to choose the desirable response category in items “every time joins online class discussion” and “looked up answers to questions in an online exam” varied by topic. In Table 4.7, the proportion of socially desirable categories differed by the order in which the response categories were presented “listens with attention every time during online classes”, “reads 5 or more hours a day for academic purposes”, and “Joined field of study to help the community”.

In this section, I examined whether the above findings hold in multi-variable models and I ran multiple logistic regression models where the dependent variables are

the items in which the proportions of socially desirable categories are significantly associated with the topic and the response order. This involves controlling for response order for questions whose distributions differed significantly by survey topic and controlling for survey topic for questions whose distributions differed significantly by response order. To control for background differences, I included age, sex, level of education, and perceived survey time variable. I included the latter variable because the actual time that survey took to complete per respondent was not recorded. Instead, respondents reported the time it took to complete the survey (see Table 4.4). In this variable, I dropped the last category from the analysis as it has a very small frequency.

As in Table 4.8, all the models have small pseudo-R square values that range from 0.06 to 0.18. Also, I reported sensitivity, specificity, and accuracy values for all models. The low pseudo  $R^2$  values suggest that the explanatory variables included in the models explain a small portion of the variance in the dependent variable. In the multivariable logistic regression models, the topic effect is still significant in two models “every time joins online class discussion” and “looked up answers to questions in an online exam”. The desirable category was more likely to be chosen under the topic “social life of students during the distance education process of the COVID-19 pandemic”. In the bivariate analysis, the tendency to choose socially desirable categories differed by the response-order in three items. However, in the multivariable logistic regression models, the response-order effect is significant only in models 1 and 4. In both models, the desirable response categories are more likely to be chosen when they appear first on the list. The pseudo  $R^2$  is slightly higher in the models in which the response-order effect is significant compared to the model in which the topic effect is significant (see Table 4.8). This suggests that the response order has a greater influence than the topic. The perceived survey time effect is significant ( $p < 0.001$ ) in model four and respondents who perceived the survey time as “a reasonable amount of time” were more likely to choose the socially desirable response category. Regarding the background variables, the sex variable is significant in model 4 and females had a higher tendency to choose the socially desirable response category. The

level of education is significant in the three models and the postgraduate students were more likely to choose socially desirable response categories (see Table 4.8).

Table 4.8. Odds Ratio from Multiple Logistic Regression Models for Choosing the Desirable Responses by Topic, Response-Order, Perceived Survey Time, Age, Sex, and Level of Education

|                                                                                                        | Model <sup>1</sup> 1 | Model <sup>2</sup> 2 | Model <sup>3</sup> 3 | Model <sup>4</sup> 4 | Model <sup>5</sup> 5 |
|--------------------------------------------------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                                                                                        | Odds ratio           | Odds ratio           | Odds ratio           | Odds ratio           | Odds ratio           |
| <b>Topic</b>                                                                                           |                      |                      |                      |                      |                      |
| Focus during online classes                                                                            | 0.71                 | 0.40**               | 0.84                 | 0.85                 | 0.62*                |
| The social life of students during the distance education process of the COVID-19 pandemic (reference) |                      |                      |                      |                      |                      |
| <b>Serial Position of SDAs</b>                                                                         |                      |                      |                      |                      |                      |
| Bottom of the list                                                                                     | 0.23***              | 1.14                 | 2.89                 | 0.31***              | 0.72                 |
| Top of the list (reference group)                                                                      |                      |                      |                      |                      |                      |
| <b>Age</b>                                                                                             | 0.96                 | 1.04                 | 1.10                 | 0.94                 | 0.97                 |
| <b>Sex</b>                                                                                             |                      |                      |                      |                      |                      |
| Male                                                                                                   | 0.73                 | 1.11                 | 1.33                 | 0.525*               | 0.71                 |
| Female (reference)                                                                                     |                      |                      |                      |                      |                      |
| <b>Level of education</b>                                                                              |                      |                      |                      |                      |                      |
| Undergraduate                                                                                          | 0.24**               | 0.35*                | 0.30                 | 0.382*               | 0.51                 |
| Postgraduate (reference)                                                                               |                      |                      |                      |                      |                      |
| <b>Perceived survey time</b>                                                                           |                      |                      |                      |                      |                      |
| Less time than expected                                                                                | 0.79                 | 0.88                 | 0.29                 | 0.351***             | 0.82                 |
| A reasonable amount of time (reference)                                                                |                      |                      |                      |                      |                      |
| Pseudo R <sup>2</sup> (Nagelkerke)                                                                     | 0.16                 | 0.07                 | 0.17                 | 0.18                 | 0.06                 |
| Sensitivity (%)                                                                                        | 14.1                 | 4.3                  | 20.0                 | 26.7                 | 68.9                 |
| Specificity (%)                                                                                        | 99.6                 | 99.3                 | 99.7                 | 94.9                 | 43.3                 |
| Overall accuracy (%)                                                                                   | 83.2                 | 86.3                 | 96.2                 | 77.6                 | 57.1                 |

Note:

1. Model 1 dependent variable = joined the field of study to help the community (no/yes).
2. Model 2 dependent variable = every time joins online class discussion (no/yes).
3. Model 3 dependent variable = listens with attention every time during online classes (no/yes).
4. Model 4 dependent variable = reads 5 or more hours a day for academic purposes (no/yes).
5. Model 5 dependent variable= looked up answers to questions in an online exam (no/yes).
6. The dependent variables' labels are based on table 4.2.
7. The full output of the models is available in Appendix A.
8. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

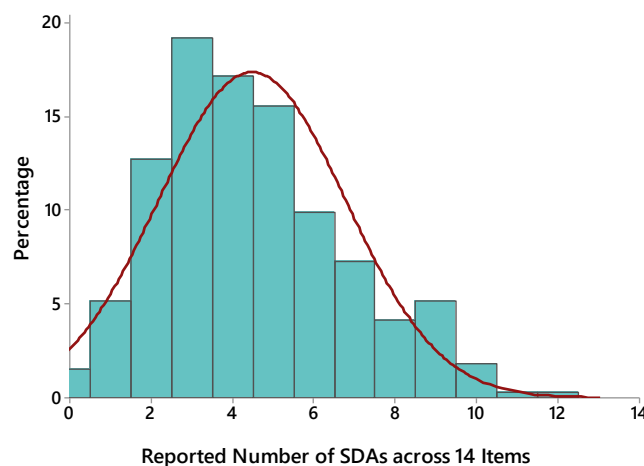


### 4.3. Systematic Tendency to SDR across a Range of Items

In this section, I investigated whether respondents who scored high on the Marlowe-Crowne SDR short-scale systematically tended to provide more socially desirable response categories. Then, I examined whether a systematic tendency to SDR differs by the survey topic, sponsor, response-order, perceived topic sensitivity, and introduction interest. To measure the systematic tendency to SDR, for each respondent, I counted the number of socially desirable answers that the respondent reported across fourteen items presented in Table 3.8. This variable is thus a count (dependent) variable.

Figure 4.2 shows the distribution of the number of socially desirable answers provided by respondents across a range of fourteen items. A high number of socially desirable responses, as discussed earlier, does not necessarily indicate that the respondent provided untrue answers but gives the notion of a systematic tendency to SDR. Overall, the distribution shows a less tendency to a systematic SDR, and the majority of the respondents provided 2 to 5 socially desirable answers across a range of 14 items.

Figure 4.2. Distribution of the Reported Number of Socially Desirable Answers across 14 Items



### Assumption testing

Unlike the previous analysis, the dependent variable (the reported number of socially desirable responses across 14 items) takes the form of a count variable. Before performing further analysis, I tested whether the dependent variable follows the Poisson distribution. For the Poisson distribution, the mean and variance are equal. The null hypothesis states that the count variable (the number of socially desirable responses that a respondent provides across 14 items) follows a Poisson distribution and the one-sample Kolmogorov-Smirnov test available in the IBM SPSS through the nonparametric window shows that the null hypothesis cannot be rejected ( $p\text{-value} > 0.05$ ) as in Table 4.9.

Table 4.9. One-Sample Kolmogorov-Smirnov Test

| Number of socially desirable responses across a range of 14 items |       |
|-------------------------------------------------------------------|-------|
| Poisson Parameter                                                 | 4.48  |
| p-value                                                           | 0.602 |
| Kolmogorov-Smirnov Z                                              | 0.765 |
| n                                                                 | 383   |

Test distribution is Poisson

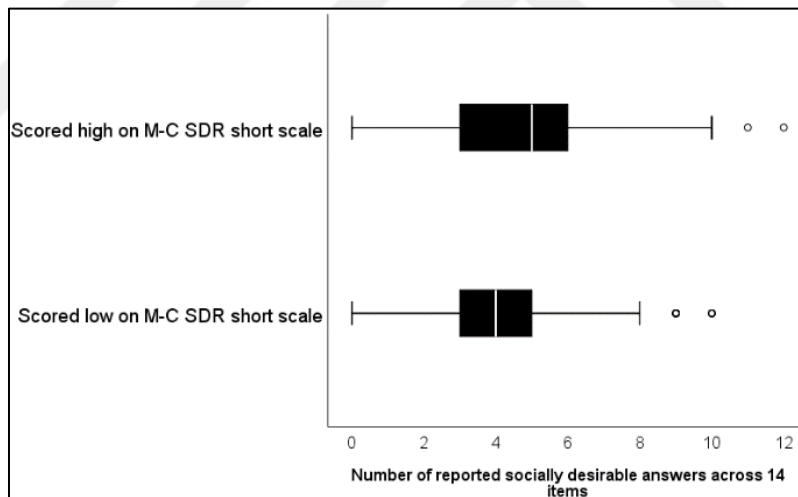
Also, to perform tests like t-test and ANOVA, the normality assumption should be met. I tested the normality assumption as obvious in Figure 4.2 the data seems to be approximately normal (with a skewness=0.56) though it violates the normality assumption (Kolmogorov-Smirnov statistic = 0.14,  $p\text{-value}=0.000$ ) as in Table 4.10. Skewness is a measure of the lack of symmetry around the mean, and for symmetry purposes, a skewness value within  $\pm 1$  is usually excellent (George & Malley, 2019). In this analysis, I used both parametric tests (t-test and ANOVA) and count data statistical tests (2-sample Poisson rate and Poisson regression) and reported both results.

Table 4.10. Normality Assumption

| Kolmogorov-Smirnov statistic | Df  | Sig   | Skewness |
|------------------------------|-----|-------|----------|
| 0.14                         | 383 | 0.000 | 0.56     |
|                              | n   |       | 383      |

As I elaborated in chapter 2, SDR could be a respondent characteristic and in this analysis, I took into account this dimension. Then, I turn to investigate whether some respondents tended more toward a systematic SDR than other respondents. When the first group (those who scored above the mean on the Marlowe-Crowne SDR short scale) is compared to the second group (those who scored below the mean), on average the first group reported 4.80 socially desirable answers across a range of 14 items compared to the second group who provided 4.15 desirable answers. In addition, as Figure 4.3 demonstrates, the observations of those who scored high on the Marlowe-Crowne SDR short-scale are more dispersed than the latter group.

Figure 4.3. Systematic Tendency to SDR by the Marlowe-Crowne SDR Short Scale



To inspect whether those who scored high on the Marlowe-Crowne short scale also reported a high number of SDAs, the independent samples t-test is an appropriate statistical procedure. Nonetheless, the homogeneity of variance among groups must be checked (Kim & Park, 2019; R. M. Warner, 2013). The assumption of homogeneity of variance was met as Levene's Test for Equality of Variances is insignificant ( $F=0.016$ ,  $p\text{-value}=0.898$ ). To test whether the means of the two groups significantly differ, I used independent samples t-test and a two-sample Poisson rate (available in the Minitab 17) and reported the results of both approaches for comparison purposes (see Table 4.11).

Table 4.11. Average Reported Number of Socially Desirable Responses by the Scores on the M-C SDR Scale (Independent Samples t-Test)

| With outliers |     |         |                 |            | Without outliers |     |         |                 |            |           |
|---------------|-----|---------|-----------------|------------|------------------|-----|---------|-----------------|------------|-----------|
| t value       | df  | P-Value | Mean difference | Std. error | t value          | df  | p-value | Mean difference | Std. error | Cohen's d |
| 2.74          | 381 | 0.006   | 0.64**          | 0.23       | 2.84             | 375 | 0.005   | 0.63**          | 0.22       | 0.28      |

n=383

Table 4.12. Average Reported Number of Socially Desirable Responses by the Scores on the M-C SDR Scale (2-Sample Poisson Rate)

| Estimate for difference | p-value | Z     | Exact test p-value | 95% CI<br>For difference |       |
|-------------------------|---------|-------|--------------------|--------------------------|-------|
|                         |         |       |                    | L                        | Up    |
| 0.64**                  | 0.003   | -3.03 | 0.002              | -1.07                    | -0.23 |

n=383

Table 4.11 displays the results obtained from the independent samples t-test and the mean difference is significant ( $t=2.74$   $p\text{-value}=0.006$ ). Even when the outliers were controlled the mean difference is still significant ( $t=2.84$   $p<0.005$ ). This result confirms that respondents who scored high on the Marlowe-Crowne SDR short scale also provided more socially desirable response categories across 14 items on average. Another important measure is the effect size which indicates the magnitude of the difference between the means of the groups. The value in the far right column indicates that the difference between the groups is small according to Cohen's effect size guidelines. As regards the 2-sample Poisson rate, Table 4.12 also shows that the mean difference is statistically significant at  $p<0.01$ .

#### 4.3.1. Effects of Topic and Sponsor across a Range of Items

I examined whether the survey topic and sponsor influence the systematic tendency to SDR confirmed by Tables 4.11 and 4.12. The assumption was that a systematic tendency to SDR would be greater under the topic "focus during online

classes” and the “Hacettepe University Institute of Population Social Research Methodology” as a sponsor.

For the topic, the sample estimates indicate the opposite and a systematic tendency to SDR is relatively higher under the topic “social life of students during the distance education process of the COVID-19 pandemic” compared to the “focus during online classes” (see Table 4.13).

For the sponsor, the result endorses the assumption that a systematic tendency to SDR was higher under “HUIPS DSRM” compared to Ph.D. as the survey sponsor.

Table 4.13. Mean Reported Number of Socially Desirable Answers by the Survey Topic and Sponsor

|                                                                      | Topic                       |                                                                   | Sponsor      |            |
|----------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------|--------------|------------|
|                                                                      | Focus during online classes | The social life of students during the distance education process | Ph.D. thesis | HUIPS DSRM |
| Mean reported number of socially desirable responses across 14 items | 4.36                        | 4.61                                                              | 4.42         | 4.55       |

To determine whether significant differences exist between the experimental groups by comparing the averages in Table 4.13, two-way ANOVA is an appropriate procedure. But to perform a two-way ANOVA the homogeneity assumption should be met. The homogeneity assumption was met as Levene's Test of Equality of Error Variances indicates (Levene statistic based on mean=1.410 p-value=0.239). I performed a two-way ANOVA and the two-way ANOVA in Table 4.14 reveals that neither the survey topic nor the sponsor effects are significant (p-value>0.05), and the interaction term is insignificant (p-value>0.05) as well.

Table 4.14. Between-Subjects Effects

|                 | Type III Sum<br>of Squares | df  | Mean<br>Square | F       | p-value |
|-----------------|----------------------------|-----|----------------|---------|---------|
| Corrected model | 17.38                      | 3   | 5.79           | 1.09    | 0.355   |
| Intercept       | 7631.511                   | 1   | 7631.51        | 1431.65 | 0.000   |
| Topic           | 3.47                       | 1   | 3.47           | 0.65    | 0.421   |
| Sponsor         | 1.31                       | 1   | 1.31           | 0.25    | 0.621   |
| Topic*Sponsor   | 10.39                      | 1   | 10.77          | 2.02    | 0.156   |
| Error           | 2020.29                    | 379 | 5.33           |         |         |
| Total           | 9744.00                    | 382 |                |         |         |
|                 |                            |     |                | n       | 383     |

#### 4.3.2. Effect of Introduction Interest across a Range of Items

Now, I examine whether the systematic tendency to SDR differs by the introduction interest. I expected that compared to respondents who found the survey interesting ‘optimizers’, respondents who found the survey less interesting “reluctant respondents” will demonstrate a higher systematic tendency to SDR.

Contrary to this expectation, respondents who found the survey interesting tended to report more socially desirable response categories “not interesting at all” has an average of 3.42 desirable responses, somewhat interesting 3.91, interesting 5.04, and very interesting 5.63. To investigate whether the means of the groups statistically differ, a one-way ANOVA is an appropriate test. This time the homogeneity assumption was not met (Leven’s statistic= 3.10, p-value=0.027). I run Welch’s one-way ANOVA where the homogeneity assumption is not necessary (Jim Frost, 2020). Table 4.15 shows that the means of the groups significantly differ (Welch’s statistic=15.504, p=0.000, shown in Table 4.15).

Table 4.15 SDR across a Range of Items by Introduction Interest (Welch’s One-Way ANOVA)

| Welch  | P-value | df1 | df2     |
|--------|---------|-----|---------|
| 15.504 | 0.000   | 3   | 144. 63 |

The Games-Howell's post-hoc multiple comparisons In Table 4.16 indicate that the mean values of the first two groups were significantly (p-value <0.05) different from the mean values of the last two groups. A similar association between interest in the survey and the Marlowe-Crowne SDR short-scale was also observed while those who found the survey interesting scored higher on the scale. The Eta-squared value shows that the group membership explains about 11% of the variability in the reported number of socially desirable response categories across 14 items.

Table 4.16 Average Reported Number of Socially Desirable Responses by the Introduction Interest (Game-Howell's Post-Hoc Multiple Comparisons)

|                        | Mean value | Pairwise comparisons | Mean difference | Std. error | p-value | Eta squared value |
|------------------------|------------|----------------------|-----------------|------------|---------|-------------------|
| Not interesting at all | 3.42       | Somewhat interesting | -0.50           | 0.31       | 0.381   | 0.11              |
|                        |            | Interesting          | -1.62***        | 0.31       | 0.000   |                   |
|                        |            | Very interesting     | -2.21***        | 0.42       | 0.000   |                   |
| Somewhat Interesting   | 3.91       | Interesting          | -1.13***        | 0.26       | 0.000   |                   |
|                        |            | Very interesting     | -1.71***        | 0.38       | 0.000   |                   |
| Interesting            | 5.04       | Very interesting     | -0.59           | 0.39       | 0.436   |                   |
| Very interesting       | 5.63       |                      |                 |            |         |                   |

#### 4.3.3. Effect of Perceived Topic Sensitivity across a Range of Items

As I discussed in Chapter 3, respondents were asked to evaluate how sensitive they found the survey topic at the end of the questionnaire. Even though the experimental topics might not seem to be very sensitive, the majority of the respondents rated them both as either "sensitive" or "very sensitive" (see Table 4.17). However, it is essential to mention that perceived topic sensitivity was asked in the last section of the questionnaire and may have been affected by the actual content of the questionnaire, which did include some sensitive questions. To overcome this potential shortcoming, respondents were reminded

of the survey topic as part of the question, but it is not possible to disentangle the potential contribution of this from the potential influence of the survey content.

Table 4.17. Perceived Topic Sensitivity

| Topic                                                                                      | Perceived topic sensitivity |                 |                | $\chi^2$ | df | p-value |
|--------------------------------------------------------------------------------------------|-----------------------------|-----------------|----------------|----------|----|---------|
|                                                                                            | Not sensitive at all        | Sensitive       | Very sensitive |          |    |         |
| Focus during online classes                                                                | 15.3%<br>(30)               | 36.7%<br>(72)   | 48.0%<br>(94)  | 0.92     | 2  | 0.632   |
| The Social life of students during the distance education process of the COVID-19 pandemic | 16.6%<br>(31)               | 32.1%<br>(60)   | 51.3%<br>(96)  |          |    |         |
| Total                                                                                      | 16.3%<br>(61)               | (34.5%<br>(132) | 49.6%<br>(190) |          | n  | 383     |

Concerning the perceived topic sensitivity, the respondents perceived “the social life of students during the distance education process of the COVID-19 pandemic” to be slightly more sensitive as in Table 4.17. To test whether the reported number of socially desirable responses across 14 items varies by the degree of perceived topic sensitivity (not sensitive at all, sensitive, and very sensitive), one-way ANOVA is suitable. The homogeneity assumption was met this time (Leven’s statistic =1.40, p-value=0.248). I run Fisher’s classical one-way ANOVA and the result shows that the average reported number of socially desirable responses marginally differs by the degree of perceived topic sensitivity (F= 3.021, p=0.05, as shown in Table 4.18).

Table 4.18 SDR across a Range of Items by the Degree of Perceived Topic Sensitivity (One-Way ANOVA Result)

|                | Sum of squares | df  | Mean squares | F     | p-value |
|----------------|----------------|-----|--------------|-------|---------|
| Between groups | 31.89          | 2   | 15.95        | 3.021 | 0.05    |
| Within groups  | 2005.78        | 380 | 5.28         |       |         |
| Total          | 2037.67        | 382 | 15.95        |       |         |



To understand which group significantly differs from other groups, pairwise comparisons are necessary. For post-hoc tests, Tukey's post-test is appropriate in this situation since the homogeneity assumption was met. Tukey's post-hoc tests show that those who perceived the survey topic as very sensitive tended more to a systematic SDR (p-value=0.052) (see Table 4.19).

Table 4.19. Average Reported Number of Socially Desirable Responses by the Perceived Topic Sensitivity (Post-hoc Multiple Comparisons)

|                      | Mean value | Pairwise comparisons | Mean difference | Std. error | p-value |
|----------------------|------------|----------------------|-----------------|------------|---------|
| Not sensitive at all | 3.97       | Sensitive            | -0.38           | 0.36       | 0.532   |
|                      |            | Very sensitive       | -0.78           | 0.34       | 0.052   |
| Sensitive            | 4.35       | Very sensitive       | -0.39           | 0.26       | 0.277   |
| Very sensitive       | 4.75       |                      |                 |            |         |

#### 4.3.4. Effect of Response-Order across a Range of Items

A systematic tendency to SDR as measured by the average reported number of SDAs across fourteen items per respondent is slightly higher when SDAs come first in order compared to when they are at the bottom of the response list. However, the effect seems to be small according to Cohen's d value (0.29) (See Table 4.20 and 4.21).

Table 4.20. Average Reported Number of Socially Desirable Responses by the Response-Order (Independent Samples t-test)

| Group  | Mean | t-value | df  | F     | Mean Difference | Std. error | Cohen's d |
|--------|------|---------|-----|-------|-----------------|------------|-----------|
| Top    | 4.82 | 2.82    | 367 | 0.005 | 0.66**          | 0.23       | 0.29      |
| Bottom | 4.16 |         |     |       |                 | n          | 383       |

Table 4.21. Average Reported Number of Socially Desirable Responses by the Response-Order (2-Sample Poisson Rate)

| Group | Mean | Estimate for difference | p-value | Z    | Exact test p-value | 95% CI For difference |      |
|-------|------|-------------------------|---------|------|--------------------|-----------------------|------|
|       |      |                         |         |      |                    | L                     | Up   |
| 1     | 4.82 | 0.66**                  | 0.002   | 3.05 | 0.002              | 0.24                  | 1.08 |
| 2     | 4.16 |                         |         |      |                    | n                     | 383  |

#### 4.3.5. Systematic Tendency to SDR in a Multivariable Poisson Regression Model

The reported number of socially desirable answers across a range of fourteen items was predicted to be produced by a Poisson distribution. To see whether the group differences we observed in the previous tables hold under a multivariable setting and investigate the variables that could best describe the variability in a systematic tendency to SDR across a range of 14 items amongst respondents, the Poisson regression is the appropriate statistical model that is utilized to predict count data.

I run a Poisson regression model that included the survey topic, sponsor, response order, introduction interest, and perceived topic sensitivity. Also, the model included age, sex, level of education, and scores on the Marlowe-Crowne short-scale to control for background and individual differences in desirable responding.

The overdispersion parameter of the Poisson regression model in Table 4.22 is (value/df=1.043) which indicates that the model fits the data. Also, the omnibus test is significant ( $p < 0.05$ ) and we can infer that the model includes the explanatory variables and represents a significant improvement over the intercept-only model.

Table 4.22. Model Summary

| Goodness of fit |     |                   | Omnibus test          |       |
|-----------------|-----|-------------------|-----------------------|-------|
| Deviance value  | df  | Deviance value/df | Likelihood chi-square | Sig   |
| 328.67          | 315 | 1.043             | 83.499                | 0.000 |

I calculated the pseudo  $R^2$  of the Poisson regression model as follows.

$$1 - \frac{\text{deviance (fitted model)}}{\text{deviance (intercept only)}} = 1 - \frac{328.67}{455.07} = 0.278 = 28\% \quad \text{This}$$

This percentage of 28% represents the amount of deviance reduced by the fitted model compared to the intercept-only model.

In Poisson regression, the observed values of the outcome variable are counts and the predicted values are in the form of a natural logarithm. To transform the predicted values to the metric of the outcome variable, the link function (natural log) of the Poisson regression is used (Coxe et al., 2009), and raising the two sides of equation (1) to the power of “e” gives the values in Table 4.23 under the column Exp(B).

The parameter estimates of the Poisson regression are in Table 4.23. The unstandardized coefficients of the survey topic and sponsor are almost zero and insignificant ( $p > 0.05$ ) suggesting that neither the topic nor the sponsor affects SDR while the response order effect is significant at  $p = 0.05$  and the standardized coefficient shows that desirable response categories are less likely (0.89 times) to be chosen when they appeared at the bottom of the response list compared to when they appeared first on the list.

The Marlowe-Crowne SD short-scale is significant, and the model shows that respondents who scored low on the M-C SD short-scale were less likely to demonstrate a systematic tendency to choose desirable response categories across 14 items compared to those who scored high on the scale.

Table 4.23. Multivariable Poisson Regression Model for SDR across a Range of Items

|                                                                         | B     | Std. Error | Wald' chi-square | P-value | Exp(B) |
|-------------------------------------------------------------------------|-------|------------|------------------|---------|--------|
| <b>Topic</b>                                                            |       |            |                  |         |        |
| Focus during online classes                                             | -0.05 | 0.05       | 0.78             | 0.384   | 0.96   |
| The social life of students during the distance education process (ref) |       |            |                  |         | 1      |
| <b>Sponsor</b>                                                          |       |            |                  |         |        |
| Ph.D. thesis                                                            | -0.04 | 0.05       | 0.83             | 0.361   | 0.95   |
| HUIPS DSRM (ref)                                                        |       |            |                  |         | 1      |
| <b>Position of SDAs on the Response list</b>                            |       |            |                  |         |        |
| Bottom                                                                  | -0.11 | 0.05       | 4.31             | 0.038   | 0.89*  |
| Top                                                                     |       |            |                  |         | 1      |
| <b>Introduction interest</b>                                            |       |            |                  |         |        |
| Not interesting at all                                                  | -0.34 | 0.11       | 9.82             | 0.002   | 0.71** |
| Somewhat interesting                                                    | -0.20 | 0.08       | 6.19             | 0.013   | 0.82*  |
| Interesting                                                             | -0.06 | 0.08       | 0.60             | 0.437   | 0.94   |
| Very interesting (ref)                                                  |       |            |                  |         | 1      |
| <b>M-C SD short-scale</b>                                               |       |            |                  |         |        |
| 0                                                                       | -0.59 | 0.33       | 3.16             | 0.075   | 0.56   |
| 1                                                                       | -0.68 | 0.27       | 6.06             | 0.014   | 0.51*  |
| 2                                                                       | -0.35 | 0.15       | 5.51             | 0.019   | 0.71*  |
| 3                                                                       | -0.21 | 0.11       | 3.97             | 0.046   | 0.81*  |
| 4                                                                       | -0.19 | 0.10       | 4.07             | 0.044   | 0.82*  |
| 5                                                                       | -0.19 | 0.10       | 3.80             | 0.051   | 0.83   |
| 6                                                                       | -0.07 | 0.10       | 0.52             | 0.471   | 0.93   |
| 7 (ref)                                                                 |       |            |                  |         | 1      |
| <b>Perceived topic sensitivity</b>                                      |       |            |                  |         |        |
| Not sensitive at all                                                    | -0.07 | 0.08       | 0.70             | 0.403   | 0.93   |
| Sensitive                                                               | -0.01 | 0.06       | 0.05             | 0.823   | 0.98   |
| Very sensitive (ref)                                                    |       |            |                  |         | 1      |
| <b>Perceived survey time<sup>19</sup></b>                               |       |            |                  |         |        |
| Less time than expected                                                 | -0.15 | 0.05       | 7.26             | 0.007   | 0.84** |
| A Reasonable Amount of Time                                             |       |            |                  |         | 1      |
| <b>Age</b>                                                              | -0.02 | 0.01       | 2.37             | 0.124   | 96     |
| <b>Sex</b>                                                              |       |            |                  |         |        |
| Male                                                                    | -0.11 | 0.06       | 3.08             | 0.079   | 0.90   |
| Female (ref)                                                            |       |            |                  |         | 1      |
| <b>Education</b>                                                        |       |            |                  |         |        |
| Education (Undergraduate)                                               | -0.34 | 0.09       | 10.23            | 0.001   | 0.74** |
| Master or Ph.D. (ref)                                                   |       |            |                  |         | 1      |
| *p-value <0.05, **p-value<0.01                                          |       |            |                  | n       | 340    |

A respondent who scored 1 on the M-C SD short-scale was 0.51 times less likely to systematically choose desirable response categories across 14 items compared to a

<sup>19</sup> The third category has small frequency and it was dropped from the analysis.

respondent who scored 7 on the M-C SDR short-scale. The introduction interest variable is still significant and those who rated the survey introduction less interesting were less likely to consistently choose desirable response categories (see Table 4.23).

The perceived survey time variable is statistically significant at  $p=0.01$  as well and the regression model shows that compared to those who perceived the survey time as “Less time than expected”, the respondents who perceived the survey time as “a reasonable amount of time” are more likely to systematically choose socially desirable answers across 14 items. Finally, according to the model, males were not significantly different than females in terms of the rate of reporting more socially desirable responses. The undergraduate students are 0.74 times less susceptible to respond to consistently choose desirable response categories across 14 items compared to postgraduate students.

#### **4.3.6. Investigating the Effect of the Recruitment Approach on SDR**

As I addressed in Chapter 3, approaching the whole population yielded a low response rate, there was the support received from some academic staff at Hacettepe University in distributing the survey invitation. Therefore respondents received the survey link in two different ways: (1) Some received it directly from the Hacettepe University Public Relations and Press Office (2) another group received it from the Hacettepe University academic staff. I compared respondents based on the contact method because the difference between these two ways that respondents could participate in the survey can affect respondents' impression of the survey and act like sponsor effects. In this comparison, I grouped respondents with the use of the date the questionnaires were received<sup>20</sup>. The purpose of this analysis is to examine whether desirable responding varies among these two groups with the presumption that respondents who received the survey

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<sup>20</sup> The date of the questionnaire may not give correct number of the groups but at least rough estimates of the number of the two groups.

link from the academic staff may consider the survey request obligatory and subsequently may demonstrate more tendency to SDR.

At the item level, contrary to the expectation mentioned earlier, the point estimates show that respondents who received the link directly from the Hacettepe University Public Relations and Press Office were more likely to respond to the desirable direction compared to those who received the link from the academic staff, but only four items are statistically significant (see Table 4.24).

However, it is important to highlight that the groups were not random, the sample was small, and the two groups greatly differ in size (60 vs. 323) and this might have influenced the power of the test and increased the chance of type I error.

In a multivariable Poisson regression, controlling for effects of other variables of interest (topic, sponsor, response order, scores on the Marlowe-Crowne scale, introduction interest, and background characteristics), I investigated whether a specific group reported more socially desirable response categories across a range of fourteen items. As in Table 4.25, the sponsor is insignificant whereas the recruitment approach is significant and the result indicates that the systematic tendency to SDR varies by the respondent recruitment approach, and those who directly received the survey invitation from the Hacettepe University Public Relations and Press Office were more likely to respond in a socially desirable manner across a range of items. This result is consistent with the descriptive result in Table 4.24. Also, this result might suggest that the recruitment approach overshadowed the sponsor effect. However, it is essential to keep in mind the low power of this analysis as mentioned in the previous paragraph, and the increased chance of type I error.

Table 4.24. Socially Desirable Responding by the Recruitment Approach

| Item                                                                                  | Desirable response category | Received the link from the Hacettepe University Public Relations and Press Office % | Received the link from the Hacettepe University academic staff % | $\chi^2$ (p-value) |
|---------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------|--------------------|
| Reason for the joined field of study                                                  | To help the community       | 30.0 (18)                                                                           | 15.8 (51)                                                        | 6.92** (0.009)     |
| I live within                                                                         |                             |                                                                                     |                                                                  |                    |
| Number of hours allocated for online classes per day during the fall term 2020-2021   | 5 hours and above           | 13.2 (14)                                                                           | 86.8 (92)                                                        | 0.67 (0.413)       |
| Time management during the distance education process                                 | Very good                   | 26.7 (16)                                                                           | 9.9 (32)                                                         | 12.97*** (0.000)   |
| Cumulative GPA in the fall term 2020-2021                                             | Very good/Excellent         | 53.3 (32)                                                                           | 31.0 (100)                                                       | 11.21*** (0.001)   |
| Joins online class discussions                                                        | Every time                  | 13.3 (8)                                                                            | 12.4 (40)                                                        | 0.042 (0.838)      |
| Attention during online classes                                                       | Every time                  | 15.0 (9)                                                                            | 2.2 (7)                                                          | 20.82*** (0.000)   |
| Uses social media during online classes                                               | No                          | 43.3 (26)                                                                           | 34.1 (110)                                                       | 1.90 (0.168)       |
| Looked up answers to questions in an online exam                                      | No                          | 60.0 (36)                                                                           | 52.6 (170)                                                       | 1.11 (0.293)       |
| Number of reading hours for academic purposes per day during fall term 2020-2021      | 5 hours and above           | 33.3 (20)                                                                           | 22.9 (74)                                                        | 2.97 (0.085)       |
| Spent time with someone without masks in the last 24 hrs.                             | No                          | 43.3 (26)                                                                           | 52.3 (169)                                                       | 1.64 (0.201)       |
| Days for physical activity for health and fitness purposes per week in the last month | 3 days and above            | 43.3 (26)                                                                           | 40.2 (130)                                                       | 0.200 (0.655)      |
| Ever smoked cigarettes                                                                | No                          | 30 (18)                                                                             | 37.5 (121)                                                       | 1.22 (0.270)       |
| Ever drank alcoholic drinks                                                           | No                          | 40.0 (24)                                                                           | 38.7 (125)                                                       | 0.036 (0.850)      |
| Currently in a romantic relationship                                                  | Female                      | 51.5 (17)                                                                           | 69.9 (158)                                                       | 4.45* (0.035)      |
|                                                                                       | No                          |                                                                                     |                                                                  |                    |
|                                                                                       | Male                        | 46.2 (12)                                                                           | 40.7 (37)                                                        | 0.251 (0.617)      |
|                                                                                       | Yes                         |                                                                                     |                                                                  |                    |
| Number of cases                                                                       |                             | 60                                                                                  | 323                                                              |                    |

Table 4.25. Recruitment Approach Effects in a Poisson Regression Model

|                                                                         | B     | Std. Error | Wald' chi-square | P-value  | Exp(B) |
|-------------------------------------------------------------------------|-------|------------|------------------|----------|--------|
| <b>Recruitment approach</b>                                             |       |            |                  |          |        |
| Received link from HUPRPO                                               | 0.22  | 0.09       | 6.21             | 0.013*   | 1.24   |
| Received the link from the academic staff                               |       |            |                  |          | 1      |
| <b>Topic</b>                                                            |       |            |                  |          |        |
| Focus during online classes                                             | -0.02 | 0.05       | 0.15             | 0.696    | 0.98   |
| The social life of students during the distance education process (ref) |       |            |                  |          | 1      |
| <b>Sponsor</b>                                                          |       |            |                  |          |        |
| Ph.D. thesis                                                            | -0.05 | 0.05       | 0.88             | 0.348    | 0.95   |
| HUIPS DSRM (ref)                                                        |       |            |                  |          | 1      |
| <b>Position of SDAs on the Response list</b>                            |       |            |                  |          |        |
| Bottom                                                                  | -0.12 | 0.05       | 4.92             | 0.026*   | 0.89   |
| Top                                                                     |       |            |                  |          | 1      |
| <b>Introduction interest</b>                                            |       |            |                  |          |        |
| Not interesting at all                                                  | -0.39 | 0.10       | 14.33            | 0.000*** | 0.68   |
| Somewhat interesting                                                    | -0.25 | 0.08       | 11.11            | 0.001**  | 0.78   |
| Interesting                                                             | -0.07 | 0.07       | 0.95             | 0.331    | 0.93   |
| Very interesting (ref)                                                  |       |            |                  |          | 1      |
| <b>M-C SD short-scale</b>                                               |       |            |                  |          |        |
| 0                                                                       | -0.59 | 0.33       | 3.20             | 0.074    | 0.56   |
| 1                                                                       | -0.49 | 0.23       | 4.41             | 0.036*   | 0.61   |
| 2                                                                       | -0.28 | 0.14       | 3.69             | 0.055    | 0.76   |
| 3                                                                       | -0.20 | 0.10       | 3.81             | 0.051    | 0.82   |
| 4                                                                       | -0.20 | 0.92       | 4.88             | 0.027*   | 0.82   |
| 5                                                                       | -0.22 | 0.94       | 5.36             | 0.021*   | 0.81   |
| 6                                                                       | -0.10 | 0.94       | 1.09             | 0.298    | 0.91   |
| 7 (ref)                                                                 |       |            |                  |          | 1      |
| <b>Sex</b>                                                              |       |            |                  |          |        |
| Male                                                                    | -0.17 | 0.60       | 8.25             | 0.004**  | 0.84   |
| Female (ref)                                                            |       |            |                  |          | 1      |
| <b>Education</b>                                                        |       |            |                  |          |        |
| Education (Undergraduate)                                               | -0.20 | 0.10       | 4.50             | 0.034*   | 0.81   |
| Master or Ph.D. (ref)                                                   |       |            |                  |          | 1      |
| <b>Age</b>                                                              | -0.01 | 0.01       | 1.44             | 0.230    | 0.99   |
|                                                                         |       |            |                  | n        | 352    |

Note. \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

In survey research, it is conventional to compare survey data quality by mode of data collection, contact, or the approach in which the respondents are recruited. The research in this area shows that the recruitment approach matters (Groves, Floyd J. Fowler, et al., 2004). In the present dissertation, it was not planned to do such an analysis but a change in the recruitment approach during the data collection prompted this latter analysis.



The result presented above might suggest that students who received the survey link from the University Public Relations and Press Office were those who have a higher propensity to join the survey requests from Hacettepe University, such as distance learning students.

However, the differences in response behavior between the two groups cannot be attributed to SDR alone because the two groups were not random. It is also essential to take into account when interpreting the results from the online survey experiment the differences between undergraduate and post-graduate students, despite the level of education including all the statistical models produced.

#### **4.4.Sensitivity of Survey Items**

The final section of the analysis aims to investigate whether the tendency to respond in the socially desirable direction increases as item-related sensitivity increases. To do so, there is a need for an objective criterion to sort survey items from less sensitive to more sensitive. Empirically, to understand the perceived sensitivity of survey items, respondents are asked to rate the sensitivity of survey items (Coutts & Jann, 2011; Kreuter et al., 2008). Also, a post-hoc approach to evaluate the sensitivity of survey items is the item nonresponse rate (INR) (Krumpal, 2013; Lensvelt-Mulders, 2008; Tourangeau & Yan, 2007).

##### **4.4.1. Experimental Results**

Table 4.26 presents the proportion of students who rated each item as sensitive. The items “Reason for the joined field of study”, “Number of hours allocated for online classes per day during the fall term 2020-2021”, and “Time management during the distance education process” were rated as not sensitive at all (with 100% agreement) and dropped from this analysis. However, 11 items were rated as “sensitive” with varying proportions. Items were ranked based on these proportions and presented in Table 4.26.

The items “looked up answers to questions in an online exam”, “currently in a romantic relationship”, “spent time with someone without masks”, and “ever drank alcohol” are the items with the highest sensitivity ratings, followed by each of the ever smoked cigarettes, use of social media during classes, and CGPA. The item that asks about attention during online classes has the smallest sensitivity rating.

The proportions of responding in the socially desirable direction and the sensitivity ratings are higher in the questions with the denial response category “no”. As in Table 4.26, the pattern of the proportions of responding in the socially desirable direction resembles the pattern of sensitivity ratings.

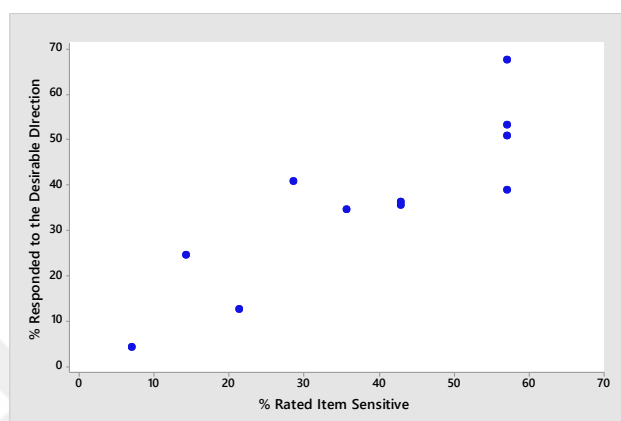
Table 4.26. Responding in the Socially Desirable Direction by the Sensitivity of Survey Items

| Item                                                                                  | Desirable response Category | An independent group of students rated the item as sensitive % | Respondents responded to the socially desirable direction % |
|---------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------------------------|-------------------------------------------------------------|
| Attentive during online classes                                                       | Every time                  | 7.1                                                            | 4.2                                                         |
| Number of reading hours for academic purposes per day during fall term 2020-2021      | 5 hours and above           | 14.3                                                           | 24.5                                                        |
| Joins online-class discussions                                                        | Every time                  | 21.4                                                           | 12.5                                                        |
| Days for physical activity for health and fitness purposes per week in the last month | 3 days and above            | 28.6                                                           | 40.7                                                        |
| 2020-2021fall term CGPA                                                               | Very good / Excellent       | 35.7                                                           | 34.5                                                        |
| Use social media during online classes                                                | No                          | 42.9                                                           | 35.5                                                        |
| Ever-smoked cigarettes                                                                | No                          | 42.9                                                           | 36.3                                                        |
| Spent time with someone without masks                                                 | No                          | 57.1                                                           | 50.9                                                        |
| Ever Drank Alcohol                                                                    | No                          | 57.1                                                           | 38.9                                                        |
| Currently in a romantic relationship                                                  | No                          | 57.1                                                           | 67.6                                                        |
| Looked up answers to questions online exam                                            | No                          | 57.1                                                           | 53.3                                                        |

For a detailed discussion on responding in the socially desirable direction for all items, see Table 4.2

I tested whether a statistical association exists between the proportion of respondents who responded in the socially desirable direction and the proportion of respondents who rated the item as sensitive. A bivariate correlation test shows that the sensitivity ratings are significantly ( $r=0.867$   $p=0.001$ ) correlated with the proportions of respondents who responded in the socially desirable direction as in Figure 4.4. The proportions of responding in the desirable direction increase as the proportions of sensitivity ratings rise. This result confirms the assumption that SDR is greatly influenced by the increment of item sensitivity.

Figure 4.4. Proportions of Respondents Who Responded in the Socially Desirable Direction by the Proportions of those Who Rated Item as a Sensitive



#### 4.4.2. Secondary Data Results

Table 4.27. The 2012 Argentina GSHS Sample Characteristics

| Variable |                        | Unweighted<br>n | Weighted<br>% |
|----------|------------------------|-----------------|---------------|
| Age      | 11 years old           | 79              | 0.4           |
|          | 12 years old           | 638             | 5.0           |
|          | 13 years old           | 4,989           | 20.6          |
|          | 14 years old           | 8,177           | 29.5          |
|          | 15 years old           | 7,724           | 25.4          |
|          | 16 years old and older | 6,527           | 19.2          |
| Sex      | Female                 | 14,624          | 51.7          |
|          | Male                   | 13,364          | 48.3          |
| Grade    | 8th EGB                | 9,288           | 37.2          |
|          | 9th EGB                | 9,972           | 33.5          |
|          | 1st Pol                | 8,287           | 29.3          |
|          |                        | n               | 28368         |

Note. Valid percentages are reported.

I presented first the background characteristics of the 2012 Argentina GSHS sample. Table 4.27 shows the distribution of respondents by school year (8th and 9th grades of basic general education (Educación General Básica or EGB), and 1st Polimodal

in Argentina which is equivalent to first-class of Secondary Education). These school years correspond to ages 11-17 years old and above. Respondents aged 11 and 12 years old are only 5.4% of the respondents. Females made up 52% and males 48%.

#### 4.4.2.1.Sensitivity of Survey Items Based on Item Nonresponse Rates

Table 4.28 presents the nonresponse rates of the items including the background characteristics. The items are ranked according to their nonresponse rates. For background items, weight and height items have the highest non-response rates. This might suggest that height and weight have a higher sensitivity than other background items.

For the other items, the three items “how many times injured past 12 months.”, “cause of injury past 12 months.”, and “what was serious injury past 12 months.” have the highest nonresponse rates of 12.9%, 10.9%, and 9.4% respectively. When I averaged the nonresponse rates of the items within each module, violence and unintentional injury items have the highest nonresponse rate (6.5%) followed by in order the items of sexual behavior (5.4%), alcohol (4.7%), experiences at school and home (4.5%), drug use 3.9%, physical activity 3.9%, mental health (2.1%), tobacco use (1.9%), hygiene (1.3%), and dietary behaviors 1%. In this analysis, I grouped the item “during the past 30 days, how often did you go hungry because there was not enough food in your home?” under the dietary behavior module.

Table 4.28. Nonresponse Rates of Items from the 2012 Argentina GSHS

| Module                  | Item   | Item<br>Nonresponse<br>rate<br>% | Average item<br>nonresponse<br>rate across<br>the module% |
|-------------------------|--------|----------------------------------|-----------------------------------------------------------|
| Background<br>Variables | Age    | 0.08                             | 15.7                                                      |
|                         | Sex    | 1.3                              |                                                           |
|                         | Grade  | 2.9                              |                                                           |
|                         | Weight | 37.9                             |                                                           |
|                         | Height | 37.9                             |                                                           |

Table 4.28. Cont.

| Module               | Item                                                   | Item<br>Nonresponse<br>rate<br>% | Average item<br>nonresponse<br>rate across<br>the module% |
|----------------------|--------------------------------------------------------|----------------------------------|-----------------------------------------------------------|
| Dietary<br>Behavior  | Number of times ate fast food in the past 7 days.      | 0.7                              | 1.0                                                       |
|                      | Number of times ate fruit per day in the past 30 days. | 0.9                              |                                                           |
|                      | Drink soft drinks in the past 30 days.                 | 1.1                              |                                                           |
|                      | Eat vegetables in the past 30 days.                    | 1.2                              |                                                           |
|                      | How often went hungry in the past 30 days.             | 1.2                              |                                                           |
| Hygiene              | Times brush teeth per day.                             | 0.8                              | 1.3                                                       |
|                      | Wash hands after toilet in the past 30 days.           | 0.9                              |                                                           |
|                      | Used soap on hands in the past 30 days.                | 1.2                              |                                                           |
|                      | Wash hands before eating in the past 30 days.          | 1.4                              |                                                           |
| Tobacco<br>Use       | Used other tobacco in the past 30 days.                | 0.9                              | 1.9                                                       |
|                      | Parents who use tobacco.                               | 1.4                              |                                                           |
|                      | Others smoked in your presence.                        | 1.7                              |                                                           |
|                      | Number of days smoked in the past 30 days.             | 1.9                              |                                                           |
|                      | Age first tried cigarettes.                            | 2.9                              |                                                           |
| Mental<br>Health     | Try to stop smoking.                                   | 2.9                              | 2.1                                                       |
|                      | Times could not sleep in the past 12 months.           | 0.7                              |                                                           |
|                      | Times attempted suicide in the past 12 months.         | 1.7                              |                                                           |
|                      | Ever make a suicide plan in the past 12 months.        | 2.2                              |                                                           |
|                      | Times felt lonely in the past 12 months.               | 2.0                              |                                                           |
|                      | Number of close friends.                               | 2.8                              |                                                           |
| Physical<br>Activity | Ever considered suicide in the past 12 months.         | 2.8                              | 3.8                                                       |
|                      | Days active 60 min plus past 7 days.                   | 2.9                              |                                                           |
|                      | Time spent sitting on a usual day.                     | 3.8                              |                                                           |
|                      | Walk or bike to school past 7 days.                    | 3.8                              |                                                           |
| Drug use             | Days went to physical education each week.             | 5.6                              | 3.9                                                       |
|                      | Times used marijuana in the past 30 days.              | 3                                |                                                           |
|                      | Times used amphetamines lifetime.                      | 3                                |                                                           |
|                      | Age first tried drugs.                                 | 4.5                              |                                                           |
|                      | Times used marijuana lifetime.                         | 4.6                              |                                                           |

Table<sup>1</sup> 4.28. Cont.

| Module <sup>2</sup>                     | Item <sup>3</sup>                                             | Item<br>Nonresponse<br>rate<br>% | Average <sup>4</sup> item<br>nonresponse<br>rate across the<br>module% |
|-----------------------------------------|---------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------|
| Protective<br>factors                   | Parents check homework in the past 30 days.                   | 3.9                              | 4.5                                                                    |
|                                         | Number of days miss school no permission in the past 30 days. | 4.1                              |                                                                        |
|                                         | Parents understand troubles in the past 30 days.              | 4.6                              |                                                                        |
|                                         | Parents go through things in the past 30 days.                | 4.9                              |                                                                        |
|                                         | Others were helpful in school in the past 30 days.            | 5                                |                                                                        |
|                                         | Parents know what you did in the past 30 days.                | 5.3                              |                                                                        |
| Alcohol                                 | Times drunk during life.                                      | 2.9                              | 4.7                                                                    |
|                                         | Number of drinks in the past 30 days.                         | 3.3                              |                                                                        |
|                                         | Number of troubles as a result of drinking.                   | 4.6                              |                                                                        |
|                                         | How got drinks in the past 30 days.                           | 4.9                              |                                                                        |
|                                         | Days one drink or more in the past 30 days.                   | 5.4                              |                                                                        |
|                                         | Age first drink alcohol.                                      | 8.4                              |                                                                        |
| Sexual<br>behavior                      | Lifetime sexual partners.                                     | 4.4                              | 5.4                                                                    |
|                                         | Used birth control last intercourse.                          | 5.4                              |                                                                        |
|                                         | Used condom at last intercourse.                              | 5.4                              |                                                                        |
|                                         | Age at first sexual intercourse.                              | 5.7                              |                                                                        |
|                                         | Ever had sex.                                                 | 7.2                              |                                                                        |
| Violence and<br>Unintentional<br>Injury | Times in fights in the past 12 months.                        | 0.4                              | 6.5                                                                    |
|                                         | Times attacked in the past 12 months.                         | 1.7                              |                                                                        |
|                                         | Days bullied in the past 30 days.                             | 4.9                              |                                                                        |
|                                         | How bullied in the past 30 days?                              | 5.7                              |                                                                        |
|                                         | What was the serious injury in the past 12 months?            | 9.9                              |                                                                        |
|                                         | Cause of injury in the past 12 months.                        | 10.8                             |                                                                        |
|                                         | Times injured in the past 12 months.                          | 12.5                             |                                                                        |

1. Percentage of item nonresponse is reported.
2. Module labels are adopted from the WHO microdata repository.
3. Item labels are based on the SPSS dataset file labels.
4. The average nonresponse rate across the module has been calculated as the sum of the nonresponse rates of the items within the module divided by the number of items within the module.

#### 4.4.2.2. Item Nonresponse Rate as a Predictor to Respond in the Socially Desirable Direction

Using the items in Table 3.9, I examined whether the nonresponse rates of the items were statistically associated with the proportions of responding in the socially desirable direction. Item nonresponse rates as a post-hoc measure for the sensitivity of survey items did not significantly correlate ( $r = -0.29$ ,  $p = 0.129$ ) with the proportion of respondents who responded in the socially desirable direction (see Figure 4.5). However, nonresponse rates and proportions of SDR direction are higher in socially undesirable behaviors compared to desirable behaviors as in Table 4.29.

Table 4.29. Responding in the Socially Desirable Direction by the Item Nonresponse Rates

| Item                                                  | The socially desirable response category | Nonresponse rate % | Percentage responded in the socially desirable direction |
|-------------------------------------------------------|------------------------------------------|--------------------|----------------------------------------------------------|
| <b>Desirable behaviors</b>                            |                                          |                    |                                                          |
| Times brush teeth per day.                            | 3 or more times                          | 0.8                | 43.6                                                     |
| Wash hands after toilet in the past 30 days.          | Always                                   | 0.9                | 68.2                                                     |
| Used soap on hands in the past 30 days.               | Always                                   | 1.2                | 58.9                                                     |
| Wash hands before eating in the past 30 days.         | Always                                   | 1.4                | 43.8                                                     |
| Number of days Active 60 min plus in the past 7 days. | 3 or more days                           | 2.9                | 46.9                                                     |
| Number of days went to physical education each week.  | 3 or more days                           | 5.6                | 24.1                                                     |
| Used condom at last intercourse.                      | Yes                                      | 5.4                | 70.0                                                     |
| Used birth control last intercourse.                  | Yes                                      | 5.4                | 78.0                                                     |
| <b>Undesirable behaviors</b>                          |                                          |                    |                                                          |
| Days miss school no permission in the past 30 days.   | Zero                                     | 4.1                | 64.7                                                     |



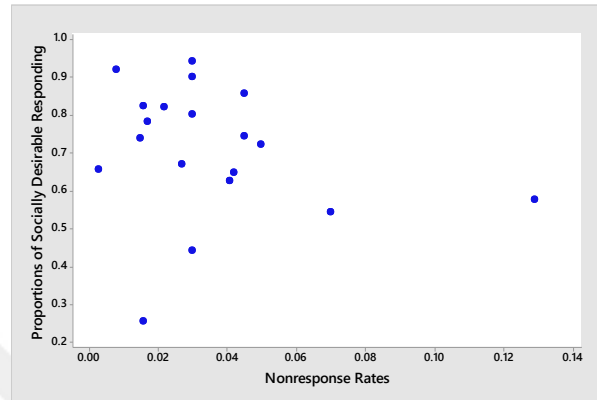
Table 4.29. Cont.

| Item                                            | The socially desirable response category | Nonresponse rate % | Percentage responded in the socially desirable direction |
|-------------------------------------------------|------------------------------------------|--------------------|----------------------------------------------------------|
| Days smoked in the past 30 days.                | Zero                                     | 1.9                | 78.3                                                     |
| Used other tobacco in the past 30 days.         | Zero                                     | 0.9                | 91.9                                                     |
| Age first tried cigarettes.                     | Never smoked                             | 2.9                | 59.7                                                     |
| Times attempted suicide in the past 12 months.  | Zero                                     | 1.7                | 82.5                                                     |
| Ever make a suicide plan in the past 12 months. | No                                       | 2.2                | 82.1                                                     |
| Ever considered suicide in the past 12 months.  | No                                       | 2.8                | 80.3                                                     |
| Number of drinks in the past 30 days.           | Zero                                     | 3.3                | 44.2                                                     |
| Number of times drunk during life.              | Zero                                     | 2.9                | 67.0                                                     |
| Age first drink alcohol.                        | Never drank                              | 8.4                | 24.2                                                     |
| Number of troubles as a result of drinking.     | Zero                                     | 4.6                | 74.4                                                     |
| Lifetime sexual partners.                       | Zero                                     | 4.4                | 62.5                                                     |
| Age at first sexual intercourse.                | Never had sexual intercourse             | 5.7                | 61.0                                                     |
| Times in fight in the past 12 months            | Zero                                     | 0.4                | 73.9                                                     |
| Times attacked in the past 12 months.           | Zero                                     | 1.7                | 65.7                                                     |
| Number of days bullied in the past 30 days.     | Zero                                     | 4.9                | 72.2                                                     |
| Times injured in the past 12 months.            | Zero                                     | 12.5               | 57.8                                                     |
| Age first tried drugs.                          | Never used drugs                         | 4.5                | 83.6                                                     |
| Times used marijuana past 30 days.              | Zero                                     | 3                  | 90.0                                                     |
| Times used amphetamines lifetime.               | Zero                                     | 3                  | 94.3                                                     |

Note.

1. All the items were recorded as dummy variables with yes/no response categories where the desirable response is yes for desirable behaviors and no for undesirable behaviors.
2. In this table, only the percentage of desirable responses was reported for each item.
3. The items “ever had sex” and “times used marijuana lifetime” are the repetition of the items “age first sexual intercourse” and “age first drugs” and were not selected here.
4. Proportions of responding in the socially desirable direction are lower in desirable behaviors except for sex-related items.

Figure 4.5. Responding in the Socially Desirable Direction by Item Nonresponse Rates



Despite that, the result indicates that there is no association between the tendency to respond in the socially desirable direction and item nonresponse rates as in Figure 4.5, it is crucial to point out that the sequence of survey items on the questionnaire might influence both the answer and the item nonresponse rate. That is, some items might have a high or low item nonresponse rate based on their position on the questionnaire. This effect is known as context-effect (also order-effect) in survey methodology (Schwarz & Sudman, 1992). In the 2012 Argentina GSHS questionnaire, the order in which the questions were answered was not uniform across respondents because the sequence of the question-answer process was controlled by the respondent and respondents could start with any question.

#### 4.4.2.3. Sensitivity of Survey Items Based on Sensitivity Index

In the case of item nonresponse rates, we saw that the proportions to respond in the socially desirable direction are not statistically associated with item nonresponse rates. Now, I used the second approach and derived the sensitivity indices for the items that ask about undesirable behaviors from the 2012 Argentina GSHS and presented them in Table 4.30.

Table 4.30. Sensitivity Indices of Items from the 2012 Argentina GSHS

| No | Item                                                          | Sensitivity Index |
|----|---------------------------------------------------------------|-------------------|
| 1  | Number of days miss school no permission in the past 30 days. | 0.09              |
| 2  | Days smoked in the past 30 days.                              | 0.07              |
| 3  | Used other tobacco in the past 30 days.                       | 0.10              |
| 4  | Age first tried cigarettes.                                   | 0.05              |
| 5  | Times attempted suicide in the past 12 months.                | 0.09              |
| 6  | Ever make a suicide plan in the past 12 months.               | 0.12              |
| 7  | Ever considered suicide in the past 12 months.                | 0.15              |
| 8  | Number of drinks in the past 30 days.                         | 0.03              |
| 9  | Number of times drunk during life.                            | 0.06              |
| 10 | Age first drink alcohol.                                      | 0.05              |
| 11 | Number of troubles as a result of drinking.                   | 0.18              |
| 12 | Lifetime sexual partners.                                     | 0.08              |
| 13 | Age at first sexual intercourse.                              | 0.12              |
| 14 | Times in fight in the past 12 months                          | 0.01              |
| 15 | Times attacked in the past 12 months.                         | 0.05              |
| 16 | Number of days bullied in the past 30 days.                   | 0.18              |
| 17 | Times injured in the past 12 months.                          | 0.36              |
| 18 | Age first tried drugs.                                        | 0.42              |
| 19 | Times used marijuana past 30 days.                            | 0.41              |
| 20 | Times used amphetamines lifetime.                             | 1.11              |

Note. Sensitivity indices are in the odds ratio.

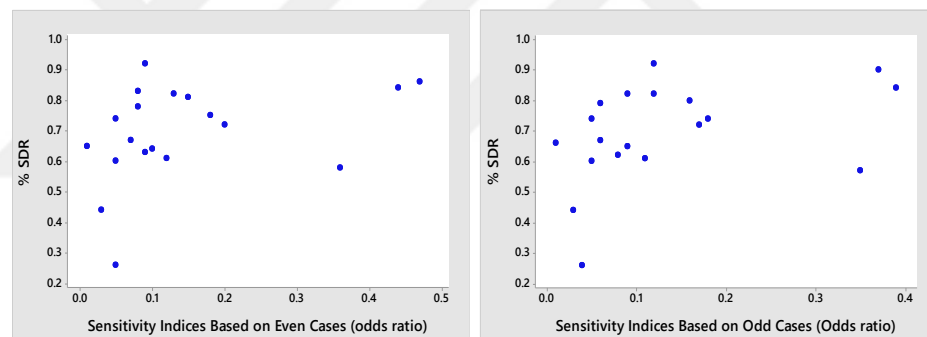
#### 4.4.2.4. Sensitivity Indices as a Predictor to Respond in the Socially Desirable Direction

Unlike the nonresponse rates, the order of the items in terms of sensitivity indices is as follows; items of drug use have the highest sensitivity indices, then, items of violence and unintentional injury items, sexual behavior, alcohol, mental health, and cigarettes.

Now, I examine whether the sensitivity indices are associated with the tendency to respond in the socially desirable direction. Figure 4.6 and Table 4.31 present the sensitivity indices and proportions of responding in the socially desirable direction based on the two random samples. I calculated correlations between the sensitivity indices calculated from the even cases and the proportions of responding in the socially desirable

direction derived from odd cases ( $r_1$ ), and also vice versa ( $r_2$ ). The correlation test shows that sensitivity indices based on the even cases ( $r_1$ ) are statistically associated ( $r_1=0.47$ ,  $p=0.037$ ) with the proportions to respond in the socially desirable direction based on the odd cases. Also, sensitivity indices based on the odd cases are statistically associated ( $r_2=0.48$ ,  $p=0.034$ ) with the proportions to respond in the desirable direction based on the even cases. However, it is essential to highlight that the correlation becomes insignificant when the drug use items are dropped from the analysis (in both cases, the p-value is greater than 0.05).

Figure 4.6 Proportions of Responding in the Socially Desirable Direction by the Sensitivity Indices



$$r_1 = 0.47, \text{Sig} = 0.037$$

$$r_2 = 0.48, \text{Sig} = 0.034$$

Table 4.31. Responding in the Socially Desirable Direction by the Sensitivity Indices

| Item                                                          | Sensitivity indices based on (even cases) | SDR proportions based on (odd cases) | Sensitivity indices based on (odd cases) | SDR proportions based on (even cases) |
|---------------------------------------------------------------|-------------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------|
| Number of days miss school no permission in the past 30 days. | 0.09                                      | 0.65                                 | 0.10                                     | 0.64                                  |
| Days smoked in the past 30 days.                              | 0.06                                      | 0.79                                 | 0.08                                     | 0.78                                  |
| Used other tobacco in the past 30 days.                       | 0.12                                      | 0.92                                 | 0.09                                     | 0.92                                  |

Table 4.31 Cont.

| Item                                            | Sensitivity indices based on (even cases) | SDR proportions based on (odd cases) | Sensitivity indices based on (odd cases) | SDR proportions based on (even cases) |
|-------------------------------------------------|-------------------------------------------|--------------------------------------|------------------------------------------|---------------------------------------|
| Age first tried cigarettes.                     | 0.05                                      | 0.60                                 | 0.05                                     | 0.60                                  |
| Times attempted suicide in the past 12 months.  | 0.16                                      | 0.80                                 | 0.15                                     | 0.81                                  |
| Ever make a suicide plan in the past 12 months. | 0.09                                      | 0.82                                 | 0.13                                     | 0.82                                  |
| Ever considered suicide in the past 12 months.  | 0.12                                      | 0.82                                 | 0.08                                     | 0.83                                  |
| Number of drinks in the past 30 days.           | 0.03                                      | 0.44                                 | 0.03                                     | 0.44                                  |
| Number of times drunk during life.              | 0.06                                      | 0.67                                 | 0.07                                     | 0.67                                  |
| Age first drink alcohol.                        | 0.04                                      | 0.26                                 | 0.05                                     | 0.26                                  |
| Number of troubles as a result of drinking.     | 0.18                                      | 0.74                                 | 0.18                                     | 0.75                                  |
| Lifetime sexual partners.                       | 0.08                                      | 0.62                                 | 0.09                                     | 0.63                                  |
| Age at first sexual intercourse.                | 0.11                                      | 0.61                                 | 0.12                                     | 0.61                                  |
| Times in fight in the past 12 months            | 0.01                                      | 0.66                                 | 0.05                                     | 0.74                                  |
| Times attacked in the past 12 months.           | 0.05                                      | 0.74                                 | 0.01                                     | 0.65                                  |
| Number of days bullied in the past 30 days.     | 0.17                                      | 0.72                                 | 0.20                                     | 0.72                                  |
| Times injured in the past 12 months.            | 0.35                                      | 0.57                                 | 0.36                                     | 0.58                                  |
| Age first tried drugs.                          | 0.39                                      | 0.84                                 | 0.44                                     | 0.84                                  |
| Times used marijuana past 30 days.              | 0.37                                      | 0.90                                 | 0.47                                     | 0.86                                  |
| Times used amphetamines lifetime.               | 1.08                                      | 0.94                                 | 1.07                                     | 0.95                                  |

Note. The sensitivity indices and proportions of responding to the desirable are based on the sampling weights of the two-stage probability sampling of the 2012 Argentina GSHS.

#### **4.4.2.5. Respondent and Item Interaction as Predictor to Respond in the Socially Desirable Direction**

In the previous analysis, I treated sensitivity as an item property. However, it is important to highlight that sensitivity seems to be an interaction between the respondent and question characteristics (Dixon, 2002) because sensitivity differs between items and respondents. Some respondents might find some items to be more sensitive compared to the other respondents. For example, items that ask about drug use are more sensitive to respondents who used drugs compared to those who did not use drugs. Taking into account this interaction and given that missing responses to sensitive questions as a proxy of finding the questionnaire sensitive, I inspected whether respondents with more missing responses in the 2012 GSHS dataset were predisposed to respond in the socially desirable direction in the items in Table 3.9 aiming to examine how the individual and question-level sensitivity interact.

At the respondent level, I created a numeric variable (independent variable) consisting of the number of missing responses with the prediction an increase in the number of missing responses follows by more tendency to respond in the socially desirable direction. Also, I used the items I transformed into binary (see Table 3.9) by recoding the desirable response category as “1” and all other response categories as “0”.

I ran a series of multiple logistic regression (28) models in which I modeled for the probability to respond in the desirable direction (dichotomous dependent variable). The independent variable of interest was the number of missing responses across 53 questions of the 2012 Argentina GSHS (a theoretical minimum of 0 and a theoretical maximum of 53 missing responses). To control for background differences, age, sex, parental control, parental smoking status, and frequency of fruit consumption in the past 30 days were used as control variables. In all models, I reported only the exponentiated regression coefficients of the variable of interest (number of missing responses variable) and the full output of all models is available in Appendix A. The independent variable

(number of missing responses) effect is significant in all undesirable behaviors and four desirable behaviors (see Table 4.32). For all significant items, the odds ratio is greater than 1 unit which indicates an increase in the number of missing responses is associated with more tendency to respond in the socially desirable direction. However, the effect seems to be very small as all odds ratios are slightly above 1 unit (see Table 4.32).

According to the nonresponse at the individual level for the sensitive items in Table 4.32, for the desirable behaviors, the odds ratio is higher in the items that address sexual behavior, such as “used condom or birth control in the last intercourse”.

Table 4.32. Odds Ratio to Respond in the Socially Desirable Direction by the Respondent's Number of Missing Responses

| Item                                                      | Odds ratio for<br>Number of missing<br>responses in the<br>regression models |
|-----------------------------------------------------------|------------------------------------------------------------------------------|
| <b>Desirable behaviors</b>                                |                                                                              |
| Brush teeth 3 times or more per day.                      | 0.99                                                                         |
| Always wash hands after toilet in the past 30 days.       | 1.04**                                                                       |
| Always used soap on hands in the past 30 days.            | 1.02                                                                         |
| Always wash your hands before eating in the past 30 days. | 1.00                                                                         |
| Physically active for 3 days or more in the last 7 days.  | 1.04***                                                                      |
| Went to physical education 3 or more days each week.      | 0.99                                                                         |
| Used condom at last intercourse.                          | 1.05***                                                                      |
| Used birth control last intercourse.                      | 1.10***                                                                      |
| <b>Undesirable behaviors</b>                              |                                                                              |
| Missed school without permission in the past 30 days.     | 1.08***                                                                      |
| Smoked in the past 30 days.                               | 1.10***                                                                      |
| Used other tobacco in the past 30 days.                   | 1.18***                                                                      |
| Ever smoked cigarettes.                                   | 1.08***                                                                      |
| Attempted suicide in the past 12 mons.                    | 1.14***                                                                      |
| Made suicide plan in the past 12 months.                  | 1.11***                                                                      |
| Considered suicide in the past 12 months.                 | 1.09***                                                                      |
| Drank alcohol in the past 30 days.                        | 1.08***                                                                      |
| Ever been drunk.                                          | 1.04*                                                                        |
| Ever drunk alcohol.                                       | 1.11***                                                                      |
| Ever been in trouble as a result of drinking.             | 1.08**                                                                       |

Table 4.32. Cont.

| Item                                | Odds ratio for<br>Number of missing<br>responses in the<br>regression models |
|-------------------------------------|------------------------------------------------------------------------------|
| Have sexual partners.               | 1.10***                                                                      |
| Ever had sex.                       | 1.15***                                                                      |
| Fought in the past 12 months.       | 1.09***                                                                      |
| Attacked in the past 12 months.     | 1.09***                                                                      |
| Bullied in the past 12 months.      | 1.12***                                                                      |
| Injured in the past 12 months.      | 1.12***                                                                      |
| Ever used drugs.                    | 1.18***                                                                      |
| Used marijuana in the past 30 days. | 1.15***                                                                      |
| Ever used amphetamines.             | 1.40***                                                                      |

Note:

1. In this table, only the exponentiated regression coefficients of the independent variable of interest were presented. The full output of all models is presented in Appendix A.
2. For all models, age, sex, parental control, and parental smoking status effects were controlled by including them in the model (see Appendix A).
3. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.

For undesirable behaviors, the odds ratio is higher in items that ask about drugs, tobacco, and sexual behavior (see Table 4.32). In sum, the results suggest that in the sensitive items, the propensity to respond in the socially desirable direction intensifies amongst respondents with more missing responses.





## **CHAPTER 5. DISCUSSION AND CONCLUSION**

### **5.1. Discussion**

This dissertation set out with the purpose of assessing the effects of survey design features on the tendency to SDR in self-administered surveys. In particular, the dissertation examined whether the tendency to choose socially desirable response categories differs by the introduction interest, survey topic, sponsor, perceived topic sensitivity, the order in which the response categories are presented, and the degree of sensitivity of survey items.

To start with, in survey literature, respondents who are more interested in the survey topic have higher response propensity and are less likely to break off (Groves et al., 2006, 2009). In the present dissertation, the purpose was to examine whether respondents' interest in the survey influences the tendency to SDR. In chapter 2 (conceptual framework section 2.6), I presented the introduction interest concept which reflects the respondent's overall interest in the survey, in particular, the respondent's interest in the survey topic and sponsor. Based on the respondent's overall impression or interest in the survey, I categorized respondents into optimizers (respondents who find the survey interesting) and reluctant respondents (respondents who find the survey less interesting). I hypothesized that reluctant respondents would have a higher propensity to respond in a socially desirable manner than optimizers. Interestingly, the results (Chapter 4, Table 4.23) showed that optimizers (respondents who said the survey introduction was interesting) had a higher propensity to choose socially desirable response categories. Nonetheless, it is important to mention the survey introduction interest assessment might not exactly measure survey introduction interest because the respondents were asked to assess the survey introduction interest after they almost filled out the questionnaire with single item measurement. Also, the survey introduction interest assessment might be subject to desirable responding, because some respondents might have a higher tendency

to SDR regardless of the item content. This was apparent in the results as respondents who scored high on the Marlowe-Crowne SDR short-scale were more likely to rate the survey introduction as interesting compared to those who scored low on the scale.

In the online survey experiment, the survey topic and sponsor were the only experimentally manipulated survey attributes that appeared in the survey introduction and the introduction interest was a combination of all survey attributes including the survey topic, sponsor, and visual design features that appeared in the introduction. In the next paragraphs, I discussed the results of the survey topic and sponsor in detail.

Although the descriptive findings showed some evidence for the tendency for SDR (or the tendency to choose socially desirable response categories) to differ by the survey topic and sponsor (Chapter 4, Table 4.7), the results of the multivariable Poisson model showed that neither topic nor sponsor effects are statistically significant (see Table 4.23). This finding did not support the hypotheses that the survey topic and sponsor may result in a systematic tendency to SDR. This suggests that they might not affect the propensity to respond in a socially desirable manner in online self-administered questionnaires. Nonetheless, this result is concordant with some survey research on survey topic and sponsor which shows that they have little effect on response rates and survey estimates (Tourangeau et al., 2009). A closely related study by Keusch (2013) reported null effects of survey topic salience on survey participation and data quality in an online panel experiment.

SDR is expected to be greater when the respondents find the survey topic to be sensitive (N. M. Bradburn et al., 1978). The experimental survey topics were not addressing traditional sensitive behaviors in survey research, such as sexual behavior or drug use, but rather asked about focus during online classes and the social life of students during the COVID-19 pandemic. Yet, respondents who perceived the survey topic as sensitive were marginally more likely to choose socially desirable response categories compared to those who perceived the survey topic as not sensitive at all.

In the literature, there are contradictory findings in survey sponsor research. For instance, some studies (Boulianne et al., 2010; Crabtree et al., 2020; Etter et al., 1996) reported a null effect of sponsor on response rate and data quality while some other studies (W. H. Jones, 1979; Ladik et al., 2007; Tourangeau et al., 2009) reported significant sponsor effects on response rate and data quality. Therefore, it appears that the sponsor effect may be contingent on the context and the respondent-sponsor involvement.

However, there could be a variety of reasons for the null effects of the survey topic and sponsor in this dissertation.

1. In the online survey experiment, the name of the survey sponsor was varied and revealed inside the survey introduction but all the respondents received the link from Hacettepe University. This might have reduced the effects of the survey sponsor and the differences between the two sponsors may not have been salient enough. Therefore, the effects of the survey sponsor on the tendency to SDR may be dependent upon the salience and the sponsor-respondent relation. For instance, sponsor effects on SDR may be more salient if the respondents receive the survey link from two sponsors that greatly differ. In the online survey experiment, some respondents received the survey link from the Hacettepe University Press and Public Relations office and some received the link through a group of Hacettepe University academic staff. Although this has not been part of the original respondent recruitment design, this aspect of data collection has been helpful in terms of providing insight on whether who invites to the survey matters. The two groups cannot be treated as experimental groups, I hypothesized that respondents who received the link through the academic staff would tend more to SDR as they might consider the survey request obligatory. The results show that respondents who received the survey link directly from the Hacettepe University Press and Public Relations office tended more to choose socially desirable response categories. Though the effects of some covariates can be controlled, the

differences in response behavior cannot be solely attributed to SDR because the groups were not random.

2. Also, it has been suggested that respondents might not give more attention to specific parts of the survey invitations that come from well-known sponsors to them (Tourangeau et al., 2009). This argument suggests that when respondents frequently receive survey requests from a specific sponsor, they might give less attention to some parts of the survey request. This is common amongst student groups as they receive many survey invites.
3. Respondents might not have given enough attention to the survey introduction or not read it at all. Instead, they may have started filling out the questionnaire.
4. In a self-administered questionnaire, when the survey topic and sponsor are revealed inside the survey introduction, they might not appear salient enough to the respondents unless the survey topic and sponsor are revealed separately to the respondents.

The findings from the survey topic and sponsor have some theoretical and practical implications. First, it should be noted that in the present dissertation, the purpose was to investigate the survey topic effect which depends on the salience of the topic and interest. In the online survey experiment of this dissertation, the survey topic was presented both in the title and inside the survey introductory statement. However, the leverage-salience theory principles are in essence based on interviewer-assisted interviews (Groves et al., 2000), the findings draw our attention that the effect of survey topic salience might not be substantial in internet-based surveys. Because it is unknown to us whether respondents direct enough attention to the survey introduction or read it all. Contrary to interviewer-assisted interviews where the interviewer presents the survey request and decides what should be salient to the sample member, the sample member supposedly should read the survey request in self-administered questionnaires where the survey request is revealed separately or inside the questionnaire. In survey research practice, it seems that a brief survey introductory statement is preferable in self-administered questionnaires (Carey et al., 1997). Since there may not be a precise measure for what could be a brief introductory

statement, a survey introductory statement that appears long might put off some sample members while some respondents might skip reading and start filling out the questionnaire. Some sample members that the survey topic might interest may not join the survey and this may also affect the survey topic interest which is another important factor of the leverage-salience theory. Also, it would be difficult to tell whether respondents are interested in the survey topic or not unless there is a question that asks about it. In personal interviews, the interviewer uses a technique known as tailoring where the interviewer senses whether the survey topic interests the sample member. If the respondent seems interested in the survey topic the interviewer makes it salient enough during the survey request otherwise the interviewer tries to make salient enough the other survey attributes that might interest the sample member. In self-administered questionnaires this is not the case, both the topic salience and topic interest effects rest on whether the respondent pays enough attention to the survey introductory statement. The theoretical points I presented here could provide some explanations as to why the effects of the survey topic and the survey sponsor were not statistically significant in internet-based questionnaires where the respondent might not be fully attentive.

In practice, researchers might have little control over the effects of the survey topic and sponsor on the response behavior, because the topic is often revealed as is and survey sponsors are closely related to funding and implementation. For example, Tourangeau et al. (2009) indicated that respondents were less likely to approve gun control when the survey sponsor was described as “the national coalition of gun owners” compared to “the national coalition for victims of gun violence” or “the national center for the study of crime”. Despite the null effects of the survey topic and sponsor, the present findings add to a growing body of research that suggests survey topic and sponsor could influence the response behavior of respondents as the descriptive results showed. In the present research, the only items in which the propensity to choose socially desirable response categories differed by topic were items related to the survey topic, such as “during online classes, how often do you join classroom discussions?” and “during the distance education

process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not?”. These findings may suggest that topic-related items may be greatly affected by desirable responding compared to items that might not be related to the survey topic and sponsor.

It is usually accepted in the literature that respondents who are interested in the survey topic have higher survey participation. The findings suggest an important point that relates to the respondents who find the survey topic interests. The findings in the multivariable Poisson regression (see Table 4.23) suggest that interested respondents could introduce SDR bias. Therefore, in practice, special attention should be given to the response behavior of the respondents who find the survey interesting and further research in this area is in need.

With respect to the response-order effects on SDR, the results supported the response-order hypothesis and show that response-order precipitates the tendency to choose socially desirable response categories. Limited research addressed the interface between response-order effects and SDR. In this research, I observed that the primacy effect mediates the tendency to choose socially desirable response categories. This result reaffirms the results reached by Kaminska & Foulsham (2013) who examined whether satisficing is a source of SDR. Kaminska & Foulsham found a significant relationship between fast reading and SDR. However, when researchers examined whether a primacy effect mediates the relationship between fast reading and the tendency to SDR, they found evidence for this. However, satisficing might be behind both the primacy effect and the tendency to SDR as the authors suggested. Another closely related study that addressed how SDR is related to response speed was conducted by Andersen & Mayerl (2019). The researchers measured whether the tendency to SDR is automatic (unconscious) or deliberate (conscious). Andersen & Mayerl indicated that item-trait (desirable or undesirable) is the underlying force of whether SDR is automatic or deliberate, that is, desirable items appear to induce faster response and subsequently automatic SDR,

whereas undesirable items tend to evoke a slower response and subsequently deliberate SDR. Although it is only possible with an eye-tracking methodology or with methods such as cognitive interviewing, in a self-administered questionnaire, SDR could be said to be automatic if the respondent chooses a socially desirable answer that appeared first on the list without further consideration of other response categories on the list. It could be deliberate if the respondent equally considers the entire response categories and then chooses the socially desirable response (keeping in mind that a desirable response could be a true value as well).

A large body of research on response-order effects (e.g. Garbarski et al., 2015; Hippler et al., 1989; Malhotra, 2008; Schwarz & Hippler, 1990) shows that the order in which the response options are presented influences the response. In the online survey experiment, the experimental manipulation of the presentation order of the response categories shows that socially desirable and undesirable response categories are more likely to be chosen when presented first on the response list. This was more likely in items with four or more response categories. For example, “excellent” has a higher frequency when presented at top of the list on a scale between “excellent” to “poor” compared to when presented in the opposite direction. This result might be explained by the fact that respondents not only give greater attention to first response categories but greater importance as well. For example, when undesirable response categories appear first, respondents whose true values are undesirable answers might not hesitate to reveal while they might hesitate when undesirable response categories appear last on the response list.

Another important issue emerging from the findings specifically relates to the response-order effects. The findings provide support for the predictions of the cognitive model (Krosnick & Alwin, 1987; Schwarz et al., 1991) and satisficing theory Krosnick (1991) because almost all the response-order effects were in the direction of the primacy effect. But for a primacy effect to be observed, the cognitive model and the satisficing theory hypothesize the plausibility or reasonability of response categories. As I elaborated



in Chapter 2 (Section 2.3.4), the terms plausibility and reasonability are closely related to social desirability. A plausible, reasonable, or desirable response is a response in agreement with social expectations. The findings challenge the notion that response categories should be reasonable, plausible, or even desirable for a primacy effect to occur. The results indicate that whatever response category that appears first on the response list would be frequently chosen compared to when it appears last on the list.

Also, based on the response-order effects on the tendency to SDR, the findings implicitly suggest that SDR might result from satisficing in visually presented self-administered modes because respondents tend to pay less attention to the response categories presented at the bottom of the list. In addition, according to the perceived survey time, respondents who considered the survey time as a reasonable amount of time had a higher tendency to SDR compared to those who deemed the survey time as less time than expected. The present findings also add that in sensitive questions, presenting socially undesirable response categories first on the response list improves their proportions.

Regarding the hypothesis based on the sensitivity of survey items, the results also supported the proposed hypothesis concerning the sensitivity of survey items, the results from the experimental data in Chapter 4 (Table 4.26) show that responding in the socially desirable direction intensifies as the item-related sensitivity increases. According to the secondary data, the analysis of the sensitivity indices (Gnambs & Kaspar, 2014) in Chapter 4 (Table 33), responding in the socially desirable direction was greater in items with higher sensitivity indices. The secondary data results also indicate a greater tendency to SDR in socially undesirable behaviors compared to desirable behaviors (Chapter 4, Table 4.29). Regarding the findings from the item nonresponse analysis as a measure of the sensitivity of survey items, there is no association between item nonresponse rate and the tendency to respond in the socially desirable direction at the item level. Therefore, items with high nonresponse rates, may not necessarily have a greater SDR bias.

Item nonresponse analysis at the individual level revealed an important finding. The results in Chapter 4 (Table 4.34) show that respondents with more missing responses had a higher propensity to respond in the socially desirable direction compared to respondents with fewer missing responses. In the survey research literature, the item nonresponse rate is considered a proxy indicator of the sensitivity of survey items (Tourangeau & Yan, 2007). To the author's best knowledge this research is one of few that relates nonresponse at the individual level to the tendency to respond in a socially desirable manner.

As discussed above, the sensitivity of the behavior is a dimension that drives desirable responding as the secondary data results indicate. Although it is very difficult to predict what could be sensitive to the respondents, the findings suggest that sensitivity appears to be a product of item content and respondent characteristic and in practice, both dimensions should be taken into account. Another important issue that emerges from the findings of the sensitivity of survey items, is that, in self-administered modes, item nonresponse could inform the propensity of socially desirable responding both at the item and individual level. Though the findings did not show that items with more missing values are not necessarily more susceptible to SDR, respondents with more missing responses had a greater tendency to respond in the socially desirable direction.

The secondary data was a representative sample of Argentina's school-based students whose ages ranged between 11-16 years old and above. However, it is important to highlight that the secondary data were collected from a specific demographic of Argentina's population and the results may not be generalized to the adult population of Argentina. Also, the results might not represent those who are in the same age group but are not in school.

It is important to remember that the results based on the secondary data are based on solely the distribution of the response categories and the tendency to SDR was not identified at the individual level, rather it was inferred from the differences between the

distributions of the response categories. As I highlighted in the results, many factors could influence the distribution of the response categories, such as the number of response categories on the list and the behavior the question is addressing, and personal differences. Also, the serial position of the question on the questionnaire might influence both the response and the item nonresponse rate (Kalton & Schuman, 1982). Because respondents tend to economize time and cognitive effort when they reach questions towards the end of the questionnaire. Therefore, questions that appear at the end of the questionnaire tend to produce low quality responses (such as straight-lining) (Galesic & Bosnjak, 2009; Herzog & Bachman, 1981). Also, it is conceivable that when boredom and tiredness strike, some respondents might not provide answers to questions that appear at the end of the questionnaire. This should be kept in mind when interpreting the findings from the secondary data.

It is also essential to take into consideration background differences when reading the findings from the secondary data. Even though it was not a primary purpose of the present dissertation to examine how the distribution of desirable response categories varies by the background characteristics, the background variables that I included in the complex sample logistic regression models (Appendix A) indicate that there were no systematic differences between females and males in responding in the socially desirable direction. But males were more likely in some items and vice versa. Considering the young age of the respondents, the older respondents (15 years old and above) were more likely to respond in the socially desirable direction to most of the questions. In violence-related questions, the younger respondents (11-14 years old) were more likely to give desirable responses. Research shows that parental control influences adolescent delinquency behavior (Zhu & Shek, 2021), such as substance use (Fagan et al., 2013). The complex sample regression models also included a variable reflecting parental control. Parental control also has an influence on responding in the socially desirable direction and respondents whose parents are not aware of their activities most of the time had a higher chance to give desirable responses.

The findings also show that the moralistic bias (Paulhus, 2002) where respondents tend to deny socially deviant behaviors is greater. Based on the findings from the secondary data analysis, the tendency to respond in the socially desirable direction was greater in socially undesirable behaviors compared to desirable behaviors. Also, based on the finding from the secondary data analysis, the findings are in favor of the suggestion that the tendency to SDR is greater in behaviors in which a small proportion of society is involved (N. Bradburn et al., 2004).

In sum, some of the proposed hypotheses hold and some did not. A summary of the proposed hypotheses based on the findings is in Table 5.1.

Table 5.1. Summary of the Proposed Hypotheses Based on the Findings

|                |                                                                                                                                               |                                                  |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| H <sub>1</sub> | Respondents who score high on the Marlowe-Crowne SDR short scale tend to report more socially desirable answers.                              | Supported                                        |
| H <sub>2</sub> | Respondents who find the survey introductory statement less interesting have a greater tendency to SDR.                                       | Not supported (the effect is opposite direction) |
| H <sub>3</sub> | Socially desirable responding differs by the survey topic presented in the survey introduction.                                               | Not supported                                    |
| H <sub>4</sub> | Respondents with a greater perceived topic sensitivity tend more to SDR.                                                                      | Marginally supported                             |
| H <sub>5</sub> | The greater leverage the survey sponsor has on the prospective respondents, the more tendency to SDR.                                         | Not supported                                    |
| H <sub>6</sub> | The serial order of socially desirable response categories on the list precipitates the tendency to SDR in a self-administered questionnaire. | Supported                                        |
| H <sub>7</sub> | The increment of item sensitivity results in more tendency to socially desirable responding.                                                  | Supported                                        |

## **5.2.Limitations and Future Research**

The findings of this dissertation have some limitations:

1. Limited control over the survey invitation and recruitment process.
2. The online experiment was carried out in a natural setting but a great part of the data came from a convenience sample (opting into an invitation sent to everyone) of undergraduate and postgraduate students. Because a very small proportion of the population participated, there is likely to be some selectivity bias. The use of such samples is common in experimental research, yet the results cannot be generalized beyond the sample.
3. The experimental tool was relatively made short to limit fatigue and break-offs and the findings may not be comparable to results obtained through longer questionnaires where fatigue and boredom might strike.
4. The online survey experiment respondents were relatively homogeneous (about 82%) of the respondents were undergraduate students aged 17-24 years old and the findings might not represent a wider population.
5. The two experimental topics used were intended to attract the interest of the respondents and also were reflecting the distance education process during the COVID-19 pandemic. Therefore, the levels of the survey topic were not distinct enough, and this could be a reason why topic effects are not significant. This was evident by the explicit question to respondents asking them to rate their sensitivity, where respondents expressed similar degrees of perceived topic sensitivity.
6. During the data collection, the survey's actual time was not recorded, instead, respondents were asked to report the amount of time they devoted to the survey.
7. Finally, a great part of the analysis of the sensitivity of survey items was based on secondary data collected from respondents that differ in age and cultural background from the respondents of the online survey. The analysis of the sensitivity of the survey items mainly rested on post-hoc measurement techniques and the ratings of the sensitivity of the survey items might not reflect the perceived

sensitivity of the respondents. Also, the results based on the secondary data were produced through complex sample analysis to account for the complex sample design of the 2012 Argentina GSHS. For the logistic regression models in Appendix B, the default classification cut-off (0.5) was used and different thresholds might be tried.

More research is needed to refine the present results and better understand the role of survey attributes on SDR in self-administered surveys.

1. In this dissertation, both topic and sponsor effects on the tendency to SDR were insignificant. Further research with more focus on the survey topic and sponsor effects on socially desirable responding in online settings is therefore suggested. When introducing the survey topic and sponsor inside the introductory statement, the survey topic and the sponsor should stand out from the rest of the writing if they are meant to be salient. For the sponsor, using the sponsor logo may make it more salient. Also, topic and sponsor effects in these situations would be useful.
  - i. Survey invitations sent by the two sponsors that greatly differ.
  - ii. Topics that greatly differ in terms of perceived sensitivity.
2. According to the leverage-salience theory, many factors influence respondents' overall interest in the survey request, such as topic, sponsor, and whether incentives are provided, etc. It would be interesting to examine a systematic tendency to SDR in situations where incentives are provided and not provided both in self-administered modes and personal interviews.
3. Further investigation is needed to examine how SDR and response-order effects interact. A combination of eye-tracking methodology (or response latency) and experimental manipulation of the serial position of socially desirable response categories on the response list would provide greater details about how SDR and response-order effects interact.
4. Using two datasets that came from different populations limited the ability to bring all the survey attributes that I addressed into a single model to determine the

attributes that have more influence on SDR. In future research, running models that combine all the attributes might give more detailed insights regarding features that mainly influence SDR in self-administered surveys.

### **5.3. Conclusion**

This dissertation is one of few investigations that examine ways that survey design attributes (survey topic, sponsor, topic sensitivity, introduction interest, response order, and sensitivity of survey items) affect social desirability bias or socially desirable responding in a self-administered questionnaire. The survey topic and sponsor fail to significantly influence the tendency to choose socially desirable response categories although the descriptive results show slight differences between the levels of the experimental factors depending on the item. By contrast, the response order and the sensitivity of survey items significantly affect desirable responding. Respondents tend to choose more frequently socially desirable response categories when they come first on the response list and when the item-related sensitivity increases. Intriguingly, the findings highlight that respondents who thought the survey topic was interesting tend to a systematic SDR. It was seen that perceived topic sensitivity marginally results in a systematic tendency to SDR, as respondents who perceived the survey topic to be very sensitive demonstrated a higher tendency to a systematic SDR. The thesis findings also show that the tendency to SDR is greater in items that are sensitive, related to the survey topic, and have more response categories.

Together, findings suggest that survey design attributes do have some influence on the tendency to SDR in a self-administered survey. The response order has a greater influence compared to the survey topic and sponsor. Additionally, the sensitivity of the survey items largely affects the tendency to choose socially desirable response categories. Moreover, the results indicate that respondents with more missing responses in the sensitive questions have a greater tendency to SDR in the sensitive questions. Also, the findings from the secondary data analysis show that items with high nonresponse rates

might not necessarily be greatly influenced by SDR. Finally, in situations where recording the actual time of the survey is impossible, the results reveal that respondents' perceived survey time might work as an alternative measure that could reveal more about the response behavior.

Concluding, in this dissertation, I have presented ways that survey attributes could trigger SDR tendency in self-administered surveys. I have conceptualized SDR as a systematic tendency to choose socially desirable response categories in a range of items triggered by either the survey attributes, inherent tendency, or the sensitivity of the questions or together. SDR could be conscious or unconscious tendency (Paulhus, 1984) or even automatic or deliberate tendency (Andersen & Mayerl, 2019). Though the present findings are not telling us whether SDR is automatic or deliberate, below are some ways survey attributes might trigger a systematic and intentional SDR:

1. Respondents with high perceived topic sensitivity might demonstrate an increased tendency to choose socially desirable response categories in items that are closely related to the survey topic. As I reported in the Chapter 4, respondents with high perceived sensitivity reported more socially desirable response categories and items that were closely related to the overall survey topic were more prone to SDR.
2. Though the sponsor effect was insignificant and probably overshadowed by the recruitment approach in the present study, it is possible that in surveys where the sponsor-respondent relationship is present (such as job satisfaction surveys) as literature shows (Arnold & Feldman, 1981), respondents might demonstrate an increased tendency to SDR in items that are closely related to the survey sponsor.
3. Literature shows that respondents who the survey interests in one way or another have a higher response rate (Groves et al., 2004). But according to the findings in this thesis, a respondent who finds the survey interesting is not necessarily less likely to respond in a socially desirable manner. Here, those who found the survey interesting reported more desirable response categories, but it should also be kept



in mind that the item that asked about the survey interest might have been susceptible to SDR.

4. In questions that ask about sensitive behaviors, as the degree of perceived sensitivity increases, a respondent whose response falls in the socially undesirable categories might be more likely to opt to report a desirable response category. In the present study, the secondary data analysis showed that respondents with more missing values were more likely to report desirable response categories.

Also, survey attributes could trigger automatic SDR in self-administered surveys. For example:

1. Because of fatigue or boredom, a respondent whose response falls in the undesirable response categories might merely choose a desirable category that comes first on the list. In such a situation, a primacy effect mediates the SDR tendency according to the primary data results. In Chapter 4, the results showed that SDR is more likely when socially desirable response categories appear first compared to when they were placed at the bottom of the list. This might also be likely when the respondent is less motivated.

In the foregoing discussion, I elaborated on ways that survey attributes could trigger SDR but it is also crucial to highlight that the implications of survey attributes on SDR might operate together with the nature of the survey and the respondent-specific characteristics.

Recommendations for practice in self-administered surveys based on the findings and limitations of this dissertation:

1. In the present dissertation, I suspect that the survey recruitment approach (all invitations going out through Hacettepe University or academic staff) may have disguised the effect of the survey sponsor. However, in situations where survey

topic and sponsor are desired to be made salient, a short survey introductory would make the survey topic and sponsor discernible and salient enough. Also, topic and sponsor should be emphasised graphically, such as bigger or bold text.

2. During the early stages of the survey operations, such as questionnaire development and design, it is essential to identify and contemplate which group of questions could trigger SDR for a specific group of respondents. This early identification would enable the formation of a theoretical framework for desirable responding and predict the direction of SDR for those questions.
3. Incorporating SDR scale into questionnaire might be useful in surveys that address a very sensitive topic for a specific target population. When the use of SDR scale is impossible, calculating the total number of desirable responses that a respondent provides across the questionnaire might give hints at how pervasive a systematic SDR is amongst respondents.
4. For questions that might appear sensitive to all respondents, the perceived social desirability might greatly differ for possible answers. Presenting socially undesirable response categories first on the response list might encourage respondents whose responses fall into the undesirable categories to reveal their true responses. Though as discussed earlier, a primacy effect precipitates the tendency to choose first response categories.
5. After the data collection, the item nonresponse rate is a data quality indicator that could also reflect the tendency to SDR across the survey. Comparing respondents by the number of missing responses across the survey would provide insights into the response behavior. In the present study, the results showed that respondents who had more missing responses across the questionnaire had a higher tendency to respond in the socially desirable direction.

The present research presented insights about how survey attributes could influence the tendency to SDR in self-administered surveys with the above take away considerations for survey practitioners regarding questionnaire design and analysis of survey data.

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## **APPENDIX A. Extended Analysis of Table 4.8**



Model 1: Joined the field of study to help the community (no=0, yes=1)

|                                                                                        | B     | Std.Error | Wald  | p-value | Exp(B) |
|----------------------------------------------------------------------------------------|-------|-----------|-------|---------|--------|
| <b>Topic</b>                                                                           |       |           |       |         |        |
| Focus during online classes                                                            | -0.35 | 0.30      | 1.32  | 0.251   | 0.71   |
| Social life of students during the distance education process of the COVID-19 pandemic |       |           |       |         |        |
| <b>Serial Position of SDAs</b>                                                         |       |           |       |         |        |
| Bottom of the list                                                                     | -1.48 | 0.33      | 19.96 | 0.000   | 0.23   |
| Top of the list (references)                                                           |       |           |       |         |        |
| <b>Age</b>                                                                             |       |           |       |         |        |
|                                                                                        | -0.04 | 0.06      | 0.37  | 0.542   | 0.96   |
| <b>Sex</b>                                                                             |       |           |       |         |        |
| Male                                                                                   | -0.32 | 0.34      | 0.88  | 0.347   | 0.73   |
| Female(reference)                                                                      |       |           |       |         |        |
| <b>Level of education</b>                                                              |       |           |       |         |        |
| Undergraduate                                                                          | -1.44 | 0.50      | 8.25  | 0.004   | 0.24   |
| Postgraduate (reference)                                                               |       |           |       |         |        |
| <b>Perceived survey time</b>                                                           |       |           |       |         |        |
| Less time than expected                                                                | -0.24 | 0.30      | 0.67  | 0.412   | 0.79   |
| A reasonable amount of time (reference)                                                |       |           |       |         |        |
| Pseudo R <sup>2</sup> (Nagelkerke) = 0.16                                              |       |           |       |         |        |

Model 2. Every time joins online class discussion (no=0, yes=1)

|                                                                                        | B     | Std.Error | Wald | p-value | Exp(B) |
|----------------------------------------------------------------------------------------|-------|-----------|------|---------|--------|
| <b>Topic</b>                                                                           |       |           |      |         |        |
| Focus during online classes                                                            | -0.93 | 0.34      | 7.31 | 0.007   | 0.40   |
| Social life of students during the distance education process of the COVID-19 pandemic |       |           |      |         |        |
| <b>Serial Position of SDAs</b>                                                         |       |           |      |         |        |
| Bottom of the list                                                                     | 0.14  | 0.33      | 0.17 | 0.682   | 1.14   |
| Top of the list (reference)                                                            |       |           |      |         |        |
| <b>Age</b>                                                                             |       |           |      |         |        |
|                                                                                        | 0.03  | 0.06      | 0.39 | 0.534   | 1.04   |
| <b>Sex</b>                                                                             |       |           |      |         |        |
| Male                                                                                   | 0.10  | 0.35      | 0.09 | 0.768   | 1.11   |
| Female(reference)                                                                      |       |           |      |         |        |
| <b>Level of education</b>                                                              |       |           |      |         |        |
| Undergraduate                                                                          | -1.05 | 0.49      | 4.59 | 0.032   | 0.35   |
| Postgraduate (reference)                                                               |       |           |      |         |        |
| <b>Perceived survey time</b>                                                           |       |           |      |         |        |
| Less time than expected                                                                | -0.12 | 0.32      | 0.15 | 0.704   | 0.88   |
| A reasonable amount of time (reference)                                                |       |           |      |         |        |
| Pseudo R <sup>2</sup> (Nagelkerke) = 0.08                                              |       |           |      |         |        |

Model 3: Listens with attention every time during online classes (no=0, yes=1)

|                                                                                        | B     | Std.Error | Wald | p-value | Exp(B) |
|----------------------------------------------------------------------------------------|-------|-----------|------|---------|--------|
| <b>Topic</b>                                                                           |       |           |      |         |        |
| Focus during online classes                                                            | -0.18 | 0.56      | 0.10 | 0.751   | 0.84   |
| Social life of students during the distance education process of the COVID-19 pandemic |       |           |      |         |        |
| <b>Serial Position of SDAs</b>                                                         |       |           |      |         |        |
| Bottom of the list                                                                     | 1.06  | 0.62      | 2.94 | 0.087   | 2.89   |
| Top of the list (references)                                                           |       |           |      |         |        |
| <b>Age</b>                                                                             |       |           |      |         |        |
|                                                                                        | 0.09  | 0.08      | 1.52 | 0.218   | 1.10   |
| <b>Sex</b>                                                                             |       |           |      |         |        |
| Male                                                                                   | 0.28  | 0.59      | 0.23 | 0.631   | 1.33   |
| Female(reference)                                                                      |       |           |      |         |        |
| <b>Level of education</b>                                                              |       |           |      |         |        |
| Undergraduate                                                                          | -1.21 | 0.69      | 3.11 | 0.078   | 0.30   |
| Postgraduate (reference)                                                               |       |           |      |         |        |
| <b>Perceived survey time</b>                                                           |       |           |      |         |        |
| Less time than expected                                                                | -1.23 | 0.64      | 3.74 | 0.053   | 0.29   |
| A reasonable amount of time (reference)                                                |       |           |      |         |        |
| Pseudo R <sup>2</sup> (Nagelkerke) = 0.06                                              |       |           |      |         |        |

Model 4: Reads 5 or more hours a day for academic purposes (no=0, yes=1)

|                                                                                        | B     | Std.Error | Wald  | p-value | Exp(B) |
|----------------------------------------------------------------------------------------|-------|-----------|-------|---------|--------|
| <b>Topic</b>                                                                           |       |           |       |         |        |
| Focus during online classes                                                            | -0.16 | 0.27      | 0.36  | 0.547   | 0.85   |
| Social life of students during the distance education process of the COVID-19 pandemic |       |           |       |         |        |
| <b>Serial Position of SDAs</b>                                                         |       |           |       |         |        |
| Bottom of the list                                                                     | -1.19 | 0.28      | 17.71 | 0.000   | 0.31   |
| Top of the list (references)                                                           |       |           |       |         |        |
| <b>Age</b>                                                                             |       |           |       |         |        |
|                                                                                        | -0.06 | 0.06      | 0.96  | 0.326   | 0.94   |
| <b>Sex</b>                                                                             |       |           |       |         |        |
| Male                                                                                   | -0.65 | 0.32      | 4.11  | 0.043   | 0.53   |
| Female(reference)                                                                      |       |           |       |         |        |
| <b>Level of education</b>                                                              |       |           |       |         |        |
| Undergraduate                                                                          | -0.96 | 0.48      | 3.97  | 0.046   | 0.38   |
| Postgraduate (reference)                                                               |       |           |       |         |        |
| <b>Perceived survey time</b>                                                           |       |           |       |         |        |
| Less time than expected                                                                | -1.05 | 0.28      | 14.29 | 0.000   | 0.35   |
| A reasonable amount of time (reference)                                                |       |           |       |         |        |
| Pseudo R <sup>2</sup> (Nagelkerke) = 0.18                                              |       |           |       |         |        |

Model 5. Looked up answers to questions in an online exam (no=1, yes=0)

|                                                                                        | B     | Std.Error | Wald | p-value | Exp(B) |
|----------------------------------------------------------------------------------------|-------|-----------|------|---------|--------|
| <b>Topic</b>                                                                           |       |           |      |         |        |
| Focus during online classes                                                            | -0.47 | 0.23      | 4.41 | 0.036   | 0.62   |
| Social life of students during the distance education process of the COVID-19 pandemic |       |           |      |         |        |
| <b>Serial Position of SDAs</b>                                                         |       |           |      |         |        |
| Bottom of the list                                                                     | -0.32 | 0.23      | 2.06 | 0.151   | 0.72   |
| Top of the list (reference)                                                            |       |           |      |         |        |
| <b>Age</b>                                                                             |       |           |      |         |        |
|                                                                                        | -0.03 | 0.04      | 0.63 | 0.426   | 0.97   |
| <b>Sex</b>                                                                             |       |           |      |         |        |
| Male                                                                                   | -0.34 | 0.25      | 1.89 | 0.170   | 0.71   |
| Female(reference)                                                                      |       |           |      |         |        |
| <b>Level of education</b>                                                              |       |           |      |         |        |
| Undergraduate                                                                          | -0.67 | 0.44      | 2.35 | 0.125   | 0.51   |
| Postgraduate (reference)                                                               |       |           |      |         |        |
| <b>Perceived survey time</b>                                                           |       |           |      |         |        |
| Less time than expected                                                                | -0.20 | 0.22      | 0.84 | 0.359   | 0.82   |
| A reasonable amount of time (reference)                                                |       |           |      |         |        |
| Pseudo R <sup>2</sup> (Nagelkerke) = 0.05                                              |       |           |      |         |        |

## **APPENDIX B. Extended Analysis of Table 4.32**



Model 1: Brushed teeth 3 or more times a day (yes=1, no=0)

|                                     | B     | Std. Error | t      | p-value | Design effect | Exp(B) |
|-------------------------------------|-------|------------|--------|---------|---------------|--------|
| <b>Age</b>                          |       |            |        |         |               |        |
| 11-14 years old                     | -0.07 | 0.07       | -0.96  | 0.337   | 7.40          | 0.93   |
| 15-16 years old and above (ref)     |       |            |        |         |               | 1.00   |
| <b>Sex</b>                          |       |            |        |         |               |        |
| Male                                | 0.64  | 0.05       | 11.85  | 0.00    | 4.21          | 1.90   |
| Female(ref)                         |       |            |        |         |               | 1.00   |
| <b>Parental control</b>             |       |            |        |         |               |        |
| Yes                                 | -0.11 | 0.06       | -1.88  | 0.061   | 4.77          | 0.90   |
| No(ref)                             |       |            |        |         |               | 1.00   |
| <b>Ate fruit 2 times or more</b>    |       |            |        |         |               |        |
| Yes                                 | -0.67 | 0.05       | -13.11 | 0.00    | 3.69          | 0.51   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Both or either parents smoke</b> |       |            |        |         |               |        |
| Yes                                 | -0.04 | 0.07       | -0.55  | 0.586   | 5.72          | 0.97   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Number of missing values</b>     | 0.00  | 0.01       | -0.14  | 0.892   | 3.60          | 0.99   |
| Model summary                       |       |            |        |         |               |        |
| Pseudo R <sup>2</sup> (Nagelkerke)  | 0.07  |            |        |         |               |        |
| Sensitivity (%)                     | 32.2  |            |        |         |               |        |
| Specificity (%)                     | 85.5  |            |        |         |               |        |
| Overall accuracy (%)                | 61.2  |            |        |         |               |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.



Model 2: Always washed hands before eating past 30 days (yes=1, no=0)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>Effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.07 | 0.07          | -1.12 | 0.265   | 6.16             | 0.93   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.11  | 0.05          | 2.24  | 0.026   | 3.26             | 1.11   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.39 | 0.06          | -6.70 | 0.000   | 4.81             | 0.68   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.62 | 0.07          | -8.70 | 0.000   | 7.13             | 0.54   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.14 | 0.07          | -1.93 | 0.054   | 6.77             | 0.87   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.00  | 0.01          | 0.06  | 0.953   | 3.71             | 1.00   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.05  |               |       |         |                  |        |
| Sensitivity (%)                         | 33.4  |               |       |         |                  |        |
| Specificity (%)                         | 79.7  |               |       |         |                  |        |
| Overall accuracy (%)                    | 58.7  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 3: Always washed hands after toilet past 30 days (yes=1, no=0)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.08 | 0.07          | -1.18 | 0.241   | 6.55             | 0.92   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.26  | 0.07          | 3.75  | 0.000   | 6.11             | 1.29   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.36 | 0.06          | -6.06 | 0.000   | 4.65             | 0.70   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.51 | 0.07          | -7.29 | 0.000   | 5.62             | 0.60   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.20 | 0.05          | -3.83 | 0.000   | 3.39             | 0.82   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.04  | 0.01          | 2.82  | 0.005   | 3.54             | 1.04   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.04  |               |       |         |                  |        |
| Sensitivity (%)                         | 99.6  |               |       |         |                  |        |
| Specificity (%)                         | 0.9   |               |       |         |                  |        |
| Overall accuracy (%)                    | 69.0  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 4: Always used soap on hands past 30 days (yes=1, no=0)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.01 | 0.06          | -0.19 | 0.849   | 5.81             | 0.99   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.31  | 0.06          | 4.97  | 0.000   | 5.67             | 1.36   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.43 | 0.05          | -8.03 | 0.000   | 4.07             | 0.65   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.33 | 0.06          | -5.38 | 0.000   | 4.97             | 0.72   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.03 | 0.07          | -0.45 | 0.654   | 5.74             | 0.97   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.02  | 0.01          | 1.72  | 0.086   | 2.78             | 1.02   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.03  |               |       |         |                  |        |
| Sensitivity (%)                         | 88.1  |               |       |         |                  |        |
| Specificity (%)                         | 21.9  |               |       |         |                  |        |
| Overall accuracy (%)                    | 61.5  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 5: Physically active 3 or more days in the last 7 days (yes=1, no=0)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.02 | 0.06          | -0.37  | 0.709   | 6.04             | 0.98   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.77 | 0.05          | -15.14 | 0.000   | 3.76             | 0.46   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.35 | 0.07          | -5.03  | 0.000   | 7.04             | 0.70   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.16 | 0.05          | -3.41  | 0.001   | 3.05             | 0.85   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | 0.05  | 0.07          | 0.73   | 0.463   | 7.08             | 1.05   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.04  | 0.01          | 3.89   | 0.000   | 2.77             | 1.04   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.06  |               |        |         |                  |        |
| Sensitivity (%)                         | 54.0  |               |        |         |                  |        |
| Specificity (%)                         | 63.4  |               |        |         |                  |        |
| Overall accuracy (%)                    | 58.8  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 6: Went to physical education 3 or more days (yes=1, no=0)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.09 | 0.08          | -1.09 | 0.279   | 7.65             | 0.91   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | -0.26 | 0.07          | -3.60 | 0.000   | 6.04             | 0.77   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | 0.16  | 0.08          | 1.92  | 0.056   | 8.00             | 1.18   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.17 | 0.10          | -1.74 | 0.084   | 9.97             | 0.85   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | 0.17  | 0.09          | 1.97  | 0.050   | 8.29             | 1.19   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | -0.01 | 0.02          | -0.55 | 0.583   | 4.08             | 0.99   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.01  |               |       |         |                  |        |
| Sensitivity (%)                         | 0.0   |               |       |         |                  |        |
| Specificity (%)                         | 100   |               |       |         |                  |        |
| Overall accuracy (%)                    | 74.8  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 7: Used condom last sexual intercourse (yes=1, no=0)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -1.04 | 0.09          | -11.97 | 0.000   | 7.99             | 0.35   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.46  | 0.07          | 6.45   | 0.000   | 5.31             | 1.58   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.27 | 0.08          | -3.34  | 0.001   | 6.64             | 0.77   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | 0.36  | 0.06          | 5.56   | 0.000   | 4.29             | 1.43   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.21 | 0.07          | -3.30  | 0.001   | 4.35             | 0.81   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.05  | 0.01          | 3.75   | 0.000   | 2.02             | 1.05   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.10  |               |        |         |                  |        |
| Sensitivity (%)                         | 98.3  |               |        |         |                  |        |
| Specificity (%)                         | 3.5   |               |        |         |                  |        |
| Overall accuracy (%)                    | 74.1  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 8: Used birth control last sexual intercourse (yes=1, no=0)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -1.02 | 0.09          | -11.93 | 0.000   | 5.53             | 0.36   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.01 | 0.07          | -0.14  | 0.888   | 3.23             | 0.99   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.26 | 0.07          | -3.68  | 0.000   | 3.74             | 0.77   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | 0.46  | 0.07          | 6.83   | 0.000   | 3.50             | 1.59   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.28 | 0.07          | -3.83  | 0.000   | 4.16             | 0.75   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.10  | 0.02          | 5.20   | 0.000   | 3.96             | 1.10   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.08  |               |        |         |                  |        |
| Sensitivity (%)                         | 99.9  |               |        |         |                  |        |
| Specificity (%)                         | 0.2   |               |        |         |                  |        |
| Overall accuracy (%)                    | 82.7  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 9: Missed school without permission past 30 days (yes=0, no=1)

|                                     | B     | Std. Error | t      | p-value | Design effect | Exp(B) |
|-------------------------------------|-------|------------|--------|---------|---------------|--------|
| <b>Age</b>                          |       |            |        |         |               |        |
| 11-14 years old                     | -0.43 | 0.08       | -5.66  | 0.000   | 7.24          | 0.65   |
| 15-16 years old and above (ref)     |       |            |        |         |               | 1.00   |
| <b>Sex</b>                          |       |            |        |         |               |        |
| Male                                | 0.05  | 0.06       | 0.84   | 0.401   | 4.94          | 1.05   |
| Female(ref)                         |       |            |        |         |               | 1.00   |
| <b>Parental Control</b>             |       |            |        |         |               |        |
| Yes                                 | -0.85 | 0.06       | -13.89 | 0.000   | 4.64          | 0.43   |
| No(ref)                             |       |            |        |         |               | 1.00   |
| <b>Ate fruit 2 times or more</b>    |       |            |        |         |               |        |
| Yes                                 | -0.04 | 0.06       | -0.59  | 0.554   | 4.49          | 0.96   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Both or either parents smoke</b> |       |            |        |         |               |        |
| Yes                                 | -0.33 | 0.09       | -3.66  | 0.000   | 10.21         | 0.72   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Number of missing values</b>     | 0.08  | 0.02       | 5.15   | 0.000   | 4.60          | 1.08   |
| Model summary                       |       |            |        |         |               |        |
| Pseudo R <sup>2</sup> (Nagelkerke)  | 0.09  |            |        |         |               |        |
| Sensitivity (%)                     | 95.3  |            |        |         |               |        |
| Specificity (%)                     | 12.2  |            |        |         |               |        |
| Overall accuracy (%)                | 92.9  |            |        |         |               |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.



Model 10: Ever smoked cigarettes (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.84 | 0.08          | -10.88 | 0.000   | 7.82             | 0.43   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.05 | 0.09          | -0.59  | 0.558   | 10.25            | 0.95   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.78 | 0.06          | -13.09 | 0.000   | 4.55             | 0.46   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.19 | 0.04          | -4.49  | 0.000   | 2.20             | 0.83   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.58 | 0.09          | -6.80  | 0.000   | 9.29             | 0.56   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.07  | 0.01          | 5.52   | 0.000   | 3.17             | 1.08   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.13  |               |        |         |                  |        |
| Sensitivity (%)                         | 83.7  |               |        |         |                  |        |
| Specificity (%)                         | 35.9  |               |        |         |                  |        |
| Overall accuracy (%)                    | 65.6  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 11: Smoked past 30 days (yes=0, no=1)

|                                     | B     | Std. Error | t      | p-value | Design effect | Exp(B) |
|-------------------------------------|-------|------------|--------|---------|---------------|--------|
| <b>Age</b>                          |       |            |        |         |               |        |
| 11-14 years old                     | -0.72 | 0.07       | -10.18 | 0.000   | 4.49          | 0.49   |
| 15-16 years old and above (ref)     |       |            |        |         |               | 1.00   |
| <b>Sex</b>                          |       |            |        |         |               |        |
| Male                                | -0.29 | 0.07       | -4.06  | 0.000   | 4.35          | 0.75   |
| Female(ref)                         |       |            |        |         |               | 1.00   |
| <b>Parental Control</b>             |       |            |        |         |               |        |
| Yes                                 | -0.88 | 0.05       | -17.78 | 0.000   | 2.08          | 0.42   |
| No(ref)                             |       |            |        |         |               | 1.00   |
| <b>Ate fruit 2 times or more</b>    |       |            |        |         |               |        |
| Yes                                 | -0.07 | 0.07       | -0.98  | 0.326   | 3.77          | 0.94   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Both or either parents smoke</b> |       |            |        |         |               |        |
| Yes                                 | -0.66 | 0.06       | -11.70 | 0.000   | 2.81          | 0.52   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Number of missing values</b>     | 0.09  | 0.02       | 5.08   | 0.000   | 4.73          | 1.10   |
| Model summary                       |       |            |        |         |               |        |
| Pseudo R <sup>2</sup> (Nagelkerke)  | 0.11  |            |        |         |               |        |
| Sensitivity (%)                     | 99.3  |            |        |         |               |        |
| Specificity (%)                     | 2.2   |            |        |         |               |        |
| Overall accuracy (%)                | 80.4  |            |        |         |               |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 12: Used other tobacco past 30 days (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.46 | 0.14          | -3.20 | 0.002   | 7.46             | 0.63   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.29  | 0.12          | 2.42  | 0.016   | 5.20             | 1.33   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.69 | 0.11          | -6.41 | 0.000   | 4.03             | 0.50   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.06 | 0.15          | -0.42 | 0.674   | 7.39             | 0.94   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.55 | 0.12          | -4.47 | 0.000   | 5.73             | 0.58   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.17  | 0.02          | 7.19  | 0.000   | 5.08             | 1.18   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.08  |               |       |         |                  |        |
| Sensitivity (%)                         | 100   |               |       |         |                  |        |
| Specificity (%)                         | 0.6   |               |       |         |                  |        |
| Overall accuracy (%)                    | 93.4  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 13: Considered suicide past 12 months (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.21 | 0.07          | -2.96  | 0.003   | 3.95             | 0.81   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.92 | 0.07          | -12.50 | 0.000   | 3.84             | 0.40   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.82 | 0.07          | -11.61 | 0.000   | 3.81             | 0.44   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.01 | 0.09          | -0.16  | 0.876   | 5.40             | 0.99   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.33 | 0.07          | -4.78  | 0.000   | 3.71             | 0.72   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.09  | 0.02          | 4.35   | 0.000   | 4.82             | 1.09   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.09  |               |        |         |                  |        |
| Sensitivity (%)                         | 99.9  |               |        |         |                  |        |
| Specificity (%)                         | 0.4   |               |        |         |                  |        |
| Overall accuracy (%)                    | 83.3  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 14: Planned suicide past 12 months (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.13 | 0.07          | -1.99 | 0.047   | 3.31             | 0.88   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | -0.70 | 0.08          | -8.53 | 0.000   | 4.74             | 0.50   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.74 | 0.08          | -9.72 | 0.000   | 4.32             | 0.48   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.10 | 0.09          | -1.13 | 0.261   | 5.92             | 0.90   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.26 | 0.07          | -3.75 | 0.000   | 3.68             | 0.77   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.10  | 0.02          | 5.67  | 0.000   | 4.41             | 1.11   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.07  |               |       |         |                  |        |
| Sensitivity (%)                         | 99.9  |               |       |         |                  |        |
| Specificity (%)                         | 0.3   |               |       |         |                  |        |
| Overall accuracy (%)                    | 84.6  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 15: Attempted suicide past 12 months (yes=0, no=1)

|                                     | B     | Std. Error | t     | p-value | Design effect | Exp(B) |
|-------------------------------------|-------|------------|-------|---------|---------------|--------|
| <b>Age</b>                          |       |            |       |         |               |        |
| 11-14 years old                     | -0.04 | 0.07       | -0.60 | 0.547   | 3.39          | 0.96   |
| 15-16 years old and above (ref)     |       |            |       |         |               | 1.00   |
| <b>Sex</b>                          |       |            |       |         |               |        |
| Male                                | -0.46 | 0.11       | -4.10 | 0.000   | 9.16          | 0.63   |
| Female(ref)                         |       |            |       |         |               | 1.00   |
| <b>Parental Control</b>             |       |            |       |         |               |        |
| Yes                                 | -0.68 | 0.08       | -9.10 | 0.000   | 4.16          | 0.51   |
| No(ref)                             |       |            |       |         |               | 1.00   |
| <b>Ate fruit 2 times or more</b>    |       |            |       |         |               |        |
| Yes                                 | -0.09 | 0.08       | -1.03 | 0.306   | 4.99          | 0.92   |
| No (ref)                            |       |            |       |         |               | 1.00   |
| <b>Both or either parents smoke</b> |       |            |       |         |               |        |
| Yes                                 | -0.45 | 0.07       | -6.45 | 0.000   | 3.78          | 0.64   |
| No (ref)                            |       |            |       |         |               | 1.00   |
| <b>Number of missing values</b>     | 0.13  | 0.02       | 7.04  | 0.000   | 5.13          | 1.14   |
| Model summary                       |       |            |       |         |               |        |
| Pseudo R <sup>2</sup> (Nagelkerke)  | 0.07  |            |       |         |               |        |
| Sensitivity (%)                     | 99.9  |            |       |         |               |        |
| Specificity (%)                     | 0.5   |            |       |         |               |        |
| Overall accuracy (%)                | 84.6  |            |       |         |               |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 16: Ever drank alcohol (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.95 | 0.07          | -13.57 | 0.000   | 4.85             | 0.39   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.03  | 0.09          | 0.39   | 0.696   | 7.87             | 1.03   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.75 | 0.08          | -9.74  | 0.000   | 5.97             | 0.47   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | 0.02  | 0.06          | 0.39   | 0.699   | 4.06             | 1.03   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.51 | 0.08          | -6.78  | 0.000   | 5.41             | 0.60   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.11  | 0.02          | 4.93   | 0.000   | 4.03             | 1.11   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.12  |               |        |         |                  |        |
| Sensitivity (%)                         | 23.5  |               |        |         |                  |        |
| Specificity (%)                         | 91.7  |               |        |         |                  |        |
| Overall accuracy (%)                    | 72.2  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 17: Drank past 30 days (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.76 | 0.07          | -10.61 | 0.000   | 7.16             | 0.47   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.13 | 0.06          | -2.33  | 0.021   | 4.28             | 0.88   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.49 | 0.09          | -5.24  | 0.000   | 12.08            | 0.61   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.05 | 0.05          | -0.99  | 0.321   | 3.85             | 0.95   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.41 | 0.06          | -6.35  | 0.000   | 5.48             | 0.67   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.07  | 0.02          | 4.01   | 0.000   | 5.21             | 1.07   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.09  |               |        |         |                  |        |
| Sensitivity (%)                         | 52.3  |               |        |         |                  |        |
| Specificity (%)                         | 69.9  |               |        |         |                  |        |
| Overall accuracy (%)                    | 61.8  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.



Model 18: Ever been drank (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -1.05 | 0.08          | -13.04 | 0.000   | 7.54             | 0.35   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.05  | 0.07          | 0.75   | 0.452   | 5.01             | 1.05   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.74 | 0.07          | -10.76 | 0.000   | 5.51             | 0.48   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.18 | 0.06          | -3.29  | 0.001   | 3.38             | 0.83   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.58 | 0.08          | -7.50  | 0.000   | 6.96             | 0.56   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.04  | 0.02          | 2.61   | 0.009   | 3.71             | 1.04   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.14  |               |        |         |                  |        |
| Sensitivity (%)                         | 94.0  |               |        |         |                  |        |
| Specificity (%)                         | 19.3  |               |        |         |                  |        |
| Overall accuracy (%)                    | 71.2  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 19: Ever been in trouble as a result of drinking (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -0.84 | 0.11          | -7.53  | 0.000   | 11.73            | 0.43   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | -0.08 | 0.07          | -1.27  | 0.204   | 3.98             | 0.92   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.68 | 0.06          | -10.77 | 0.000   | 3.66             | 0.51   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.23 | 0.07          | -3.28  | 0.001   | 4.19             | 0.80   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.62 | 0.07          | -8.93  | 0.000   | 4.51             | 0.54   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.08  | 0.02          | 3.58   | 0.000   | 6.36             | 1.08   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.11  |               |        |         |                  |        |
| Sensitivity (%)                         | 99.2  |               |        |         |                  |        |
| Specificity (%)                         | 2.1   |               |        |         |                  |        |
| Overall accuracy (%)                    | 78.4  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 20: Ever had sex (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -1.27 | 0.09          | -14.24 | 0.000   | 9.39             | 0.28   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.45  | 0.07          | 6.11   | 0.000   | 6.46             | 1.57   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.52 | 0.08          | -6.33  | 0.000   | 8.12             | 0.59   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | 0.39  | 0.06          | 6.31   | 0.000   | 4.19             | 1.47   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.46 | 0.09          | -5.19  | 0.000   | 9.05             | 0.63   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.08  | 0.02          | 4.69   | 0.000   | 4.13             | 1.08   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.17  |               |        |         |                  |        |
| Sensitivity (%)                         | 84.8  |               |        |         |                  |        |
| Specificity (%)                         | 40.3  |               |        |         |                  |        |
| Overall accuracy (%)                    | 69.0  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 21: Have sexual partners (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | -1.23 | 0.09          | -14.28 | 0.000   | 8.78             | 0.29   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.44  | 0.08          | 5.68   | 0.000   | 7.07             | 1.55   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.58 | 0.08          | -7.22  | 0.000   | 7.57             | 0.56   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | 0.39  | 0.06          | 6.46   | 0.000   | 4.18             | 1.48   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.55 | 0.09          | -5.85  | 0.000   | 10.12            | 0.58   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.10  | 0.02          | 6.06   | 0.000   | 3.80             | 1.10   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.17  |               |        |         |                  |        |
| Sensitivity (%)                         | 86.2  |               |        |         |                  |        |
| Specificity (%)                         | 36.0  |               |        |         |                  |        |
| Overall accuracy (%)                    | 69.0  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 22: Attacked past 12 months (yes=0, no=1)

|                                         | B     | Std.<br>Error | t      | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|--------|---------|------------------|--------|
| <b>Age</b>                              |       |               |        |         |                  |        |
| 11-14 years old                         | 0.12  | 0.06          | 2.13   | 0.034   | 3.61             | 1.13   |
| 15-16 years old and above<br>(ref)      |       |               |        |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |        |         |                  |        |
| Male                                    | 0.50  | 0.05          | 9.65   | 0.000   | 2.90             | 1.65   |
| Female(ref)                             |       |               |        |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |        |         |                  |        |
| Yes                                     | -0.75 | 0.06          | -12.73 | 0.000   | 3.63             | 0.48   |
| No(ref)                                 |       |               |        |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |        |         |                  |        |
| Yes                                     | -0.11 | 0.07          | -1.45  | 0.149   | 5.57             | 0.90   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |        |         |                  |        |
| Yes                                     | -0.18 | 0.06          | -2.98  | 0.003   | 3.87             | 0.84   |
| No (ref)                                |       |               |        |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     |       |               |        |         |                  |        |
|                                         | 0.08  | 0.01          | 5.84   | 0.000   | 3.99             | 1.09   |
| Model summary                           |       |               |        |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.07  |               |        |         |                  |        |
| Sensitivity (%)                         | 99.4  |               |        |         |                  |        |
| Specificity (%)                         | 1.8   |               |        |         |                  |        |
| Overall accuracy (%)                    | 75.4  |               |        |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 23: Fought past 12 months (yes=0, no=1)

|                                     | B     | Std. Error | t      | p-value | Design effect | Exp(B) |
|-------------------------------------|-------|------------|--------|---------|---------------|--------|
| <b>Age</b>                          |       |            |        |         |               |        |
| 11-14 years old                     | 0.16  | 0.06       | 2.71   | 0.007   | 4.44          | 1.18   |
| 15-16 years old and above (ref)     |       |            |        |         |               | 1.00   |
| <b>Sex</b>                          |       |            |        |         |               |        |
| Male                                | 0.90  | 0.07       | 13.28  | 0.000   | 5.77          | 2.46   |
| Female(ref)                         |       |            |        |         |               | 1.00   |
| <b>Parental Control</b>             |       |            |        |         |               |        |
| Yes                                 | -0.66 | 0.06       | -10.50 | 0.000   | 4.92          | 0.52   |
| No(ref)                             |       |            |        |         |               | 1.00   |
| <b>Ate fruit 2 times or more</b>    |       |            |        |         |               |        |
| Yes                                 | 0.09  | 0.05       | 1.87   | 0.063   | 2.78          | 1.09   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Both or either parents smoke</b> |       |            |        |         |               |        |
| Yes                                 | -0.37 | 0.07       | -4.98  | 0.000   | 6.79          | 0.69   |
| No (ref)                            |       |            |        |         |               | 1.00   |
| <b>Number of missing values</b>     | 0.08  | 0.01       | 6.14   | 0.000   | 3.81          | 1.09   |
| Model summary                       |       |            |        |         |               |        |
| Pseudo R <sup>2</sup> (Nagelkerke)  | 0.11  |            |        |         |               |        |
| Sensitivity (%)                     | 90.7  |            |        |         |               |        |
| Specificity (%)                     | 23.6  |            |        |         |               |        |
| Overall accuracy (%)                | 68.3  |            |        |         |               |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 24: Injured past 12 months (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | 0.02  | 0.08          | 0.24  | 0.811   | 7.41             | 1.02   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.73  | 0.06          | 12.20 | 0.000   | 4.13             | 2.08   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.27 | 0.05          | -4.95 | 0.000   | 3.29             | 0.77   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.03 | 0.08          | -0.42 | 0.672   | 6.20             | 0.97   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.10 | 0.08          | -1.20 | 0.230   | 7.74             | 0.90   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.11  | 0.02          | 5.79  | 0.000   | 5.25             | 1.12   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.06  |               |       |         |                  |        |
| Sensitivity (%)                         | 97.5  |               |       |         |                  |        |
| Specificity (%)                         | 6.5   |               |       |         |                  |        |
| Overall accuracy (%)                    | 67.7  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 25: Bullied past 30 days (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | 0.27  | 0.06          | 4.72  | 0.000   | 3.35             | 1.31   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.02  | 0.08          | 0.18  | 0.861   | 7.42             | 1.02   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.43 | 0.07          | -6.29 | 0.000   | 4.80             | 0.65   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.07 | 0.09          | -0.79 | 0.433   | 8.63             | 0.93   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.14 | 0.06          | -2.31 | 0.22    | 3.76             | 0.87   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     |       |               |       |         |                  |        |
|                                         | 0.11  | 0.02          | 5.95  | 0.000   | 6.34             | 1.12   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.03  |               |       |         |                  |        |
| Sensitivity (%)                         | 99.8  |               |       |         |                  |        |
| Specificity (%)                         | 1.0   |               |       |         |                  |        |
| Overall accuracy (%)                    | 76.8  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.



Model 26: Ever used drugs (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -1.04 | 0.12          | -8.61 | 0.000   | 7.50             | 0.36   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.38  | 0.09          | 3.98  | 0.000   | 4.82             | 1.46   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.81 | 0.11          | -7.47 | 0.000   | 6.20             | 0.44   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.22 | 0.09          | -2.43 | 0.016   | 4.02             | 0.80   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.66 | 0.10          | -6.89 | 0.000   | 5.02             | 0.52   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.17  | 0.02          | 7.16  | 0.000   | 6.14             | 1.18   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.14  |               |       |         |                  |        |
| Sensitivity (%)                         | 99.8  |               |       |         |                  |        |
| Specificity (%)                         | 2.4   |               |       |         |                  |        |
| Overall accuracy (%)                    | 89.0  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 27: Used marijuana past 30 days (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.95 | 0.11          | -8.55 | 0.000   | 4.24             | 0.39   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1.00   |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.46  | 0.10          | 4.57  | 0.000   | 3.58             | 1.58   |
| Female(ref)                             |       |               |       |         |                  | 1.00   |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.88 | 0.10          | -8.80 | 0.000   | 3.28             | 0.42   |
| No(ref)                                 |       |               |       |         |                  | 1.00   |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | -0.09 | 0.09          | -1.05 | 0.294   | 2.54             | 0.91   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.59 | 0.10          | -5.83 | 0.000   | 3.82             | 0.55   |
| No (ref)                                |       |               |       |         |                  | 1.00   |
| <b>Number of missing<br/>values</b>     | 0.14  | 0.03          | 4.68  | 0.000   | 5.98             | 1.15   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.11  |               |       |         |                  |        |
| Sensitivity (%)                         | 100   |               |       |         |                  |        |
| Specificity (%)                         | 0.5   |               |       |         |                  |        |
| Overall accuracy (%)                    | 93.3  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

Model 28: Ever used amphetamines (yes=0, no=1)

|                                         | B     | Std.<br>Error | t     | p-value | Design<br>effect | Exp(B) |
|-----------------------------------------|-------|---------------|-------|---------|------------------|--------|
| <b>Age</b>                              |       |               |       |         |                  |        |
| 11-14 years old                         | -0.41 | 0.13          | -3.15 | 0.000   | 2.71             | 0.66   |
| 15-16 years old and above<br>(ref)      |       |               |       |         |                  | 1      |
| <b>Sex</b>                              |       |               |       |         |                  |        |
| Male                                    | 0.45  | 0.15          | 3.11  | 0.000   | 3.19             | 1.57   |
| Female(ref)                             |       |               |       |         |                  | 1      |
| <b>Parental Control</b>                 |       |               |       |         |                  |        |
| Yes                                     | -0.90 | 0.21          | -4.28 | 0.000   | 6.06             | 0.41   |
| No(ref)                                 |       |               |       |         |                  | 1      |
| <b>Ate fruit 2 times or more</b>        |       |               |       |         |                  |        |
| Yes                                     | 0.03  | 0.13          | 0.19  | 0.848   | 2.64             | 1.03   |
| No (ref)                                |       |               |       |         |                  | 1      |
| <b>Both or either parents<br/>smoke</b> |       |               |       |         |                  |        |
| Yes                                     | -0.71 | 0.13          | -5.43 | 0.000   | 2.69             | 0.49   |
| No (ref)                                |       |               |       |         |                  | 1      |
| <b>Number of missing<br/>values</b>     | 0.34  | 0.03          | 13.66 | 0.000   | 3.24             | 1.40   |
| Model summary                           |       |               |       |         |                  |        |
| Pseudo R <sup>2</sup> (Nagelkerke)      | 0.19  |               |       |         |                  |        |
| Sensitivity (%)                         | 99.8  |               |       |         |                  |        |
| Specificity (%)                         | 5.9   |               |       |         |                  |        |
| Overall accuracy (%)                    | 97.9  |               |       |         |                  |        |

Note.

1. Modeled for the probability to respond in the socially desirable direction.
2. The estimates are based on the two-stage probability sampling design of the 2012 Argentina GSHS.
3. Regarding the classification measures, the default cut-off point (0.5) was used and other thresholds might be tried.

## APPENDIX C. Experimental Tool



Lütfen ayın kaçında doğduğunuzu işaretleyin. Anket soruları ve anketin detayları bu sorudan sonra ekrana gelecektir.

- ☐ 1-4 *Skip to question 2*
- ☐ 5-8 *Skip to question 31*
- ☐ 9-12 *Skip to question 60*
- ☐ 13-15 *Skip to question 89*
- ☐ 16-19 *Skip to question 118*
- ☐ 20-23 *Skip to question 147*
- ☐ 24-27 *Skip to question 176*
- ☐ 28-31 *Skip to question 205*

## 1. Versiyon

### ÇEVİRİMİÇİ DERSLERDE ODAKLANMA

Bu anket çevrimiçi derslerde odaklanma ile ilgilidir ve bir doktora tezi kapsamında yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin çevrimiçi derslerde odaklanma deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

**Note.** For all the eight versions of the questionnaire, the contact information was given in the original questionnaires but was not provided here for the dissertation.

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

---

3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ İçinde yaşadığım topluma yardım etmek  
☐ Alanıma duyduğum ilgi  
☐ Ebeveynlerimin yönlendirmesi  
☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Çok olumlu
- ☐ Olumlu
- ☐ Olumlu değil

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 5 saat ve üzeri
- ☐ 3-4 saat
- ☐ 1-2 saat

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ Çok iyi
- ☐ İyi
- ☐ İyi değil

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Mükemmel
- ☐ Çok iyi
- ☐ İyi
- ☐ Orta
- ☐ Zayıf

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Her zaman
- ☐ Ara sıra
- ☐ Hiç



12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Her zaman dikkatli dinliyorum
- ☐ Genelde dikkatli dinliyorum
- ☐ Sıklıkla dikkatim dağılıyor
- ☐ Hiç dikkatli dinleyemiyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

- ☐ Hayır
- ☐ Evet

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

- ☐ Hayır
- ☐ Evet

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

- ☐ 9 saat ve üzeri
- ☐ 5-8 saat
- ☐ 1-4 saat
- ☐ Hiç

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

---

17. Kaç kg ağırlığındasınız?

---

18. Son 24 saat içinde, řu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Hayır

☐ Evet

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Üç gün ve üzeri

☐ İki gün

☐ Bir gün

☐ Hiç

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Hayır

☐ Evet

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Hayır

☐ Evet

22. řu anda devam eden bir romantik ilişkiniz var mı?

☐ Hayır

☐ Evet

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Hiç

☐ Bir

☐ İki

☐ Üç ve üzeri

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

- |                                                                                           |                       |                       |
|-------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| (a) Asla birinden çok fazla nefret etmem.                                                 | <input type="radio"/> | <input type="radio"/> |
| (b) Daima giyimime özen gösteririm.                                                       | <input type="radio"/> | <input type="radio"/> |
| (c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.                 | <input type="radio"/> | <input type="radio"/> |
| (d) Hata yaptığımda daima itiraf etmek isterim.                                           | <input type="radio"/> | <input type="radio"/> |
| (e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.                   | <input type="radio"/> | <input type="radio"/> |
| (f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim. | <input type="radio"/> | <input type="radio"/> |
| (g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.   | <input type="radio"/> | <input type="radio"/> |

26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “Çevrimiçi derslerde odaklanma” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

## 2. Versiyon

### ÇEVİRİMİÇİ DERSLERDE ODAKLANMA

Bu anket çevrimiçi derslerde odaklanma ile ilgilidir ve bir doktora tezi kapsamında yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin çevrimiçi derslerde odaklanma deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

\_\_\_\_\_

3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Ebeveynlerimin yönlendirmesi  
☐ Alanıma duyduğum ilgi  
☐ İçinde yaşadığım topluma yardım etmek  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Olumlu değil  
☐ Olumlu  
☐ Çok olumlu

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 1-2 saat
- ☐ 3-4 saat
- ☐ 5 saat ve üzeri

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ İyi değil
- ☐ İyi
- ☐ Çok iyi

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Zayıf
- ☐ Orta
- ☐ İyi
- ☐ Çok iyi
- ☐ Mükemmel

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Hiç
- ☐ Ara sıra
- ☐ Her zaman

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Hiç dikkatli dinleyemiyorum
- ☐ Sıklıkla dikkatim dağılıyor
- ☐ Genelde dikkatli dinliyorum
- ☐ Her zaman dikkatli dinliyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

☐ Evet

☐ Hayır

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

☐ Evet

☐ Hayır

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

☐ Hiç

☐ 1-4 saat

☐ 5-8 saat

☐ 9 saat ve üzeri

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

\_\_\_\_\_

17. Kaç kg ağırlığındasınız?

\_\_\_\_\_

18. Son 24 saat içinde, şu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Evet

☐ Hayır

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Hiç

☐ Bir gün

☐ İki gün

☐ Üç gün ve üzeri

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Evet

☐ Hayır

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Evet

☐ Hayır

22. Şu anda devam eden bir romantik ilişkiniz var mı?

☐ Evet

☐ Hayır

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Üç ve üzeri

☐ İki

☐ Bir

☐ Hiç

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

(a) Asla birinden çok fazla nefret etmem.

☐ ☐

(b) Daima giyimime özen gösteririm.

☐ ☐

(c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.

☐ ☐

(d) Hata yaptığımda daima itiraf etmek isterim.

☐ ☐

(e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.

☐ ☐

(f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim.

☐ ☐

(g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.

☐ ☐



26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım
- ☐

28. Hatırlayacağınız gibi anketin başında anketin “Çevrimiçi derslerde odaklanma” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

### 3. Versiyon

#### ÇEVİRİMİÇİ DERSLERDE ODAKLANMA

Bu anket çevrimiçi derslerde odaklanma ile ilgilidir ve Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri ABD tarafından yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin çevrimiçi derslerde odaklanma deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

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3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ İçinde yaşadığım topluma yardım etmek  
☐ Alanıma duyduğum ilgi  
☐ Ebeveynlerimin yönlendirmesi  
☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Çok olumlu
- ☐ Olumlu
- ☐ Olumlu değil

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 5 saat ve üzeri
- ☐ 3-4 saat
- ☐ 1-2 saat

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ Çok iyi
- ☐ İyi
- ☐ İyi değil

10. 2020-21 güz dönemindeki akademik ortalamınızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Mükemmel
- ☐ Çok iyi
- ☐ İyi
- ☐ Orta
- ☐ Zayıf

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Her zaman  
☐ Ara sıra  
☐ Hiç

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Her zaman dikkatli dinliyorum  
☐ Genelde dikkatli dinliyorum  
☐ Sıklıkla dikkatim dağılıyor  
☐ Hiç dikkatli dinleyemiyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

- ☐ Hayır  
☐ Evet

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

- ☐ Hayır  
☐ Evet

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

- ☐ 9 saat ve üzeri  
☐ 5-8 saat  
☐ 1-4 saat  
☐ Hiç

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

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17. Kaç kg ağırlığındasınız?

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18. Son 24 saat içinde, řu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Hayır

☐ Evet

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Üç gün ve üzeri

☐ İki gün

☐ Bir gün

☐ Hiç

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Hayır

☐ Evet

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Hayır

☐ Evet

22. řu anda devam eden bir romantik ilişkiniz var mı?

☐ Hayır

☐ Evet

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Hiç

☐ Bir

☐ İki

☐ Üç ve üzeri

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

- |                                                                                           |                       |                       |
|-------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| (h) Asla birinden çok fazla nefret etmem.                                                 | <input type="radio"/> | <input type="radio"/> |
| (i) Daima giyimime özen gösteririm.                                                       | <input type="radio"/> | <input type="radio"/> |
| (j) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.                 | <input type="radio"/> | <input type="radio"/> |
| (k) Hata yaptığımda daima itiraf etmek isterim.                                           | <input type="radio"/> | <input type="radio"/> |
| (l) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.                   | <input type="radio"/> | <input type="radio"/> |
| (m) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim. | <input type="radio"/> | <input type="radio"/> |
| (n) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.   | <input type="radio"/> | <input type="radio"/> |

26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “Çevrimiçi derslerde odaklanma” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

#### 4. Versiyon

### ÇEVİRİMİÇİ DERSLERDE ODAKLANMA

Bu anket çevrimiçi derslerde odaklanma ile ilgilidir ve Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri ABD tarafından yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin çevrimiçi derslerde odaklanma deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır



1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

\_\_\_\_\_

3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Ebeveynlerimin yönlendirmesi  
☐ Alanıma duyduğum ilgi  
☐ İçinde yaşadığım topluma yardım etmek  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Olumlu değil  
☐ Olumlu  
☐ Çok olumlu

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 1-2 saat
- ☐ 3-4 saat
- ☐ 5 saat ve üzeri

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ İyi değil
- ☐ İyi
- ☐ Çok iyi

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Zayıf
- ☐ Orta
- ☐ İyi
- ☐ Çok iyi
- ☐ Mükemmel

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Hiç
- ☐ Ara sıra
- ☐ Her zaman

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Hiç dikkatli dinleyemiyorum
- ☐ Sıklıkla dikkatim dağılıyor
- ☐ Genelde dikkatli dinliyorum
- ☐ Her zaman dikkatli dinliyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

☐ Evet

☐ Hayır

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

☐ Evet

☐ Hayır

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

☐ Hiç

☐ 1-4 saat

☐ 5-8 saat

☐ 9 saat ve üzeri

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

---

17. Kaç kg ağırlılığındasınız?

---

18. Son 24 saat içinde, şu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Evet

☐ Hayır

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Hiç

☐ Bir gün

☐ İki gün

☐ Üç gün ve üzeri

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Evet

☐ Hayır

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Evet

☐ Hayır

22. Şu anda devam eden bir romantik ilişkiniz var mı?

☐ Evet

☐ Hayır

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Üç ve üzeri

☐ İki

☐ Bir

☐ Hiç

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

(a) Asla birinden çok fazla nefret etmem.

☐ ☐

(b) Daima giyimime özen gösteririm.

☐ ☐

(c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.

☐ ☐

(d) Hata yaptığımda daima itiraf etmek isterim.

☐ ☐

(e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.

☐ ☐

(f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim.

☐ ☐

(g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.

☐ ☐

26. Kendinizi ne kadar dindar görüyorsunuz?

☐

☐ Son derece dindar

☐ Dindar

☐ Biraz dindar

☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

☐ Çok ilginç buldum

☐ İlginç buldum

☐ Biraz ilginç buldum

☐ Hiç ilginç bulmadım

☐

28. Hatırlayacağınız gibi anketin başında anketin “Çevrimiçi derslerde odaklanma” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

☐ Oldukça hassas bir konu

☐ Biraz hassas bir konu

☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

☐ Çok fazla zamanımı aldı

☐ Makul bir zaman aldı

☐ Beklediğimden daha az zamanımı aldı

## 5. Versiyon

### ÖĞRENCİLERİN UZAKTAN EĞİTİM SÜRECİNDE SOSYAL YAŞAMLARI

Bu anket öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları ile ilgilidir ve bir doktora tezi kapsamında yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin uzaktan eğitim sürecinde sosyal yaşam deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

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3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ İçinde yaşadığım topluma yardım etmek  
☐ Alanıma duyduğum ilgi  
☐ Ebeveynlerimin yönlendirmesi  
☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Çok olumlu
- ☐ Olumlu
- ☐ Olumlu değil

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 5 saat ve üzeri
- ☐ 3-4 saat
- ☐ 1-2 saat

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ Çok iyi
- ☐ İyi
- ☐ İyi değil

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Mükemmel
- ☐ Çok iyi
- ☐ İyi
- ☐ Orta
- ☐ Zayıf



11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Her zaman  
☐ Ara sıra  
☐ Hiç

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Her zaman dikkatli dinliyorum  
☐ Genelde dikkatli dinliyorum  
☐ Sıklıkla dikkatim dağılıyor  
☐ Hiç dikkatli dinleyemiyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

- ☐ Hayır  
☐ Evet

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

- ☐ Hayır  
☐ Evet

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

- ☐ 9 saat ve üzeri  
☐ 5-8 saat  
☐ 1-4 saat  
☐ Hiç

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

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17. Kaç kg ağırlığındasınız?

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18. Son 24 saat içinde, řu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Hayır

☐ Evet

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Üç gün ve üzeri

☐ İki gün

☐ Bir gün

☐ Hiç

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Hayır

☐ Evet

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Hayır

☐ Evet

22. řu anda devam eden bir romantik ilişkiniz var mı?

☐ Hayır

☐ Evet

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Hiç

☐ Bir

☐ İki

☐ Üç ve üzeri

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

- |                                                                                           |                       |                       |
|-------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| (a) Asla birinden çok fazla nefret etmem.                                                 | <input type="radio"/> | <input type="radio"/> |
| (b) Daima giyimime özen gösteririm.                                                       | <input type="radio"/> | <input type="radio"/> |
| (c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.                 | <input type="radio"/> | <input type="radio"/> |
| (d) Hata yaptığımda daima itiraf etmek isterim.                                           | <input type="radio"/> | <input type="radio"/> |
| (e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.                   | <input type="radio"/> | <input type="radio"/> |
| (f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim. | <input type="radio"/> | <input type="radio"/> |
| (g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.   | <input type="radio"/> | <input type="radio"/> |

26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

## 6. Versiyon

### ÖĞRENCİLERİN UZAKTAN EĞİTİM SÜRECİNDE SOSYAL YAŞAMLARI

Bu anket öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları ile ilgilidir ve bir doktora tezi kapsamında yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin uzaktan eğitim sürecinde sosyal yaşam deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

\_\_\_\_\_

3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Ebeveynlerimin yönlendirmesi  
☐ Alanıma duyduğum ilgi  
☐ İçinde yaşadığım topluma yardım etmek  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Olumlu değil  
☐ Olumlu  
☐ Çok olumlu

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 1-2 saat
- ☐ 3-4 saat
- ☐ 5 saat ve üzeri

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ İyi değil
- ☐ İyi
- ☐ Çok iyi

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Zayıf
- ☐ Orta
- ☐ İyi
- ☐ Çok iyi
- ☐ Mükemmel

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Hiç
- ☐ Ara sıra
- ☐ Her zaman

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Hiç dikkatli dinleyemiyorum
- ☐ Sıklıkla dikkatim dağılıyor
- ☐ Genelde dikkatli dinliyorum
- ☐ Her zaman dikkatli dinliyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

☐ Evet

☐ Hayır

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

☐ Evet

☐ Hayır

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

☐ Hiç

☐ 1-4 saat

☐ 5-8 saat

☐ 9 saat ve üzeri

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

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17. Kaç kg ağırlılığındaısınız?

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18. Son 24 saat içinde, şu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Evet

☐ Hayır

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Hiç

☐ Bir gün

☐ İki gün

☐ Üç gün ve üzeri

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Evet

☐ Hayır

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Evet

☐ Hayır

22. Şu anda devam eden bir romantik ilişkiniz var mı?

☐ Evet

☐ Hayır

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Üç ve üzeri

☐ İki

☐ Bir

☐ Hiç

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

(a) Asla birinden çok fazla nefret etmem.

☐ ☐

(b) Daima giyimime özen gösteririm.

☐ ☐

(c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.

☐ ☐

(d) Hata yaptığımda daima itiraf etmek isterim.

☐ ☐

(e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.

☐ ☐

(f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim.

☐ ☐

(g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.

☐ ☐



26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

## 7. Versiyon

### ÖĞRENCİLERİN UZAKTAN EĞİTİM SÜRECİNDE SOSYAL YAŞAMLARI

Bu anket öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları ile ilgilidir ve Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri ABD tarafından yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin uzaktan eğitim sürecinde sosyal yaşam deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır

1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

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3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ İçinde yaşadığım topluma yardım etmek  
☐ Alanıma duyduğum ilgi  
☐ Ebeveynlerimin yönlendirmesi  
☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Çok olumlu
- ☐ Olumlu
- ☐ Olumlu değil

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 5 saat ve üzeri
- ☐ 3-4 saat
- ☐ 1-2 saat

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ Çok iyi
- ☐ İyi
- ☐ İyi değil

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Mükemmel
- ☐ Çok iyi
- ☐ İyi
- ☐ Orta
- ☐ Zayıf

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Her zaman  
☐ Ara sıra  
☐ Hiç

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Her zaman dikkatli dinliyorum  
☐ Genelde dikkatli dinliyorum  
☐ Sıklıkla dikkatim dağılıyor  
☐ Hiç dikkatli dinleyemiyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

- ☐ Hayır  
☐ Evet

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

- ☐ Hayır  
☐ Evet

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

- ☐ 9 saat ve üzeri  
☐ 5-8 saat  
☐ 1-4 saat  
☐ Hiç

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

\_\_\_\_\_

17. Kaç kg ağırlığındasınız?

\_\_\_\_\_

18. Son 24 saat içinde, řu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Hayır

☐ Evet

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Üç gün ve üzeri

☐ İki gün

☐ Bir gün

☐ Hiç

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Hayır

☐ Evet

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Hayır

☐ Evet

22. řu anda devam eden bir romantik ilişkiniz var mı?

☐ Hayır

☐ Evet

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Hiç

☐ Bir

☐ İki

☐ Üç ve üzeri

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

- |                                                                                           |                       |                       |
|-------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| (a) Asla birinden çok fazla nefret etmem.                                                 | <input type="radio"/> | <input type="radio"/> |
| (b) Daima giyimime özen gösteririm.                                                       | <input type="radio"/> | <input type="radio"/> |
| (c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.                 | <input type="radio"/> | <input type="radio"/> |
| (d) Hata yaptığımda daima itiraf etmek isterim.                                           | <input type="radio"/> | <input type="radio"/> |
| (e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.                   | <input type="radio"/> | <input type="radio"/> |
| (f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim. | <input type="radio"/> | <input type="radio"/> |
| (g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.   | <input type="radio"/> | <input type="radio"/> |

26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanım

## 8. Versiyon

### ÖĞRENCİLERİN UZAKTAN EĞİTİM SÜRECİNDE SOSYAL YAŞAMLARI

Bu anket öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları ile ilgilidir ve Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri ABD tarafından yapılmaktadır.

Katılımınız tamamen gönüllülük esastadır ve katılıp katılmamakta özgürsünüz. Anketin herhangi bir aşamasında yanıt vermeyi bırakabilirsiniz; bu durum size herhangi bir sorumluluk getirmeyecektir. Ancak katılımınız öğrencilerin uzaktan eğitim sürecinde sosyal yaşam deneyimlerinin daha iyi anlaşılabilmesi için çok yararlı olacaktır. Paylaştığınız tüm veriler anonim ve gizli kalacak, sadece aşağıda ismi görülen araştırmacılar tarafından akademik amaçlarla kullanılacaktır.

Anketi doldurmadan önce çalışma ile ilgili herhangi bir sorunuz varsa araştırmacılara aşağıdaki iletişim bilgileri üzerinden sorabilirsiniz. Bu araştırmacılara daha sonra olabilecek sorularınız için de ulaşabilirsiniz.

Bu ankete katılmayı kabul ediyor musunuz?

☐

Evet

☐

Hayır



1. Cinsiyetiniz nedir?

- ☐ Erkek  
☐ Kadın  
☐ Söylememeyi tercih ediyorum

2. Lütfen kaç yaşınızı tamamladığınızı yazınız.

\_\_\_\_\_

3. Hangi alanda öğrenim görüyorsunuz?

- ☐ Eğitim Bilimleri  
☐ Doğa Bilimleri (biyoloji, kimya vb.)  
☐ Mühendislik Bilimleri  
☐ Sağlık Bilimleri  
☐ Sanat Bilimleri  
☐ Sosyal Bilimler  
☐ Spor Bilimleri  
☐ Diğer

4. Eğitim düzeyiniz (Şuan eğitim gördüğünüz seviyeyi seçiniz)

- ☐ Lisans  
☐ Yüksek lisans  
☐ Doktora

5. Çalışma alanınızı seçmenizin ana nedeni nedir?

- ☐ Maddi avantajlar  
☐ Statü sahibi olmak  
☐ Ebeveynlerimin yönlendirmesi  
☐ Alanıma duyduğum ilgi  
☐ İçinde yaşadığım topluma yardım etmek  
☐ Diğer

6. Genel olarak, uzaktan eğitim hakkında izleniminiz nasıl?

- ☐ Olumlu değil  
☐ Olumlu  
☐ Çok olumlu

7. Çevrimiçi öğrenim için bir nasıl bir cihaza erişiminiz var?

- ☐ Çevrimiçi derslere herhangi bir şekilde bağlanamıyorum
- ☐ Cep telefonu
- ☐ Tablet
- ☐ Laptop veya masaüstü bilgisayar

8. Uzaktan eğitime her gün ortalama ne kadar zaman ayırıyorsunuz?

- ☐ 1-2 saat
- ☐ 3-4 saat
- ☐ 5 saat ve üzeri

9. Uzaktan eğitim sürecindeki zaman yönetiminizi genel olarak nasıl değerlendirirsiniz?

- ☐ İyi değil
- ☐ İyi
- ☐ Çok iyi

10. 2020-21 güz dönemindeki akademik ortalamanızı (kümülatif GPA) nasıl değerlendirirsiniz?

- ☐ Zayıf
- ☐ Orta
- ☐ İyi
- ☐ Çok iyi
- ☐ Mükemmel

11. Çevrimiçi derslerde sınıf içi tartışmalara ne sıklıkla katılıyorsunuz?

- ☐ Hiç
- ☐ Ara sıra
- ☐ Her zaman

12. Genel olarak, çevrimiçi derslere dikkatinizi ne kadar verebiliyorsunuz?

- ☐ Hiç dikkatli dinleyemiyorum
- ☐ Sıklıkla dikkatim dağılıyor
- ☐ Genelde dikkatli dinliyorum
- ☐ Her zaman dikkatli dinliyorum

13. Genel olarak, çevrimiçi bir ders sırasında Facebook, Instagram veya Twitter gibi sosyal medya platformlarına göz atıyor musunuz?

☐ Evet

☐ Hayır

14. Mevcut COVID-19 salgına bağlı olan uzaktan eğitim sürecinde, hiç çevrimiçi bir sınavda soruların yanıtına, bakmamanız gerektiği halde, yazılı bir kaynaktan veya internetten baktınız mı?

☐ Evet

☐ Hayır

15. 2020-21 Güz dönemini düşünürseniz, günde kaç saati akademik amaçlar için okuma yaparak geçiyorsunuz?

☐ Hiç

☐ 1-4 saat

☐ 5-8 saat

☐ 9 saat ve üzeri

16. Boyunuz kaç cm? Örneğin 1 metre ve 65 santimetre ise 165 şeklinde yazınız

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17. Kaç kg ağırlılığındaısınız?

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18. Son 24 saat içinde, şu anda sizinle aynı evde veya yurt odasında kalmayan biriyle maske takmadan vakit geçirdiniz mi?

☐ Evet

☐ Hayır

19. Son 1 ayda, sağlıklı ve formda kalmak için haftada ortalama kaç gün fiziksel aktivite yaptınız?

☐ Hiç

☐ Bir gün

☐ İki gün

☐ Üç gün ve üzeri

20. Hiç, bir kere bile olsa, sigara içtiniz mi?

☐ Evet

☐ Hayır

21. Hiç, bir kere bile olsa, alkollü bir içki içtiniz mi?

☐ Evet

☐ Hayır

22. Şu anda devam eden bir romantik ilişkiniz var mı?

☐ Evet

☐ Hayır

23. Bugüne kadar kaç romantik ilişkiniz oldu?

☐ Üç ve üzeri

☐ İki

☐ Bir

☐ Hiç

24. Dikkatinizi test etmek istiyoruz, lütfen bu soruda evet yanıtına tıklayın.

☐ Evet

☐ Hayır

25. Lütfen aşağıdaki ifadelerin sizin için doğru mu yanlış mı olduğunu belirtiniz.

Doğru Yanlış

(a) Asla birinden çok fazla nefret etmem.

☐ ☐

(b) Daima giyimime özen gösteririm.

☐ ☐

(c) Kiminle konuştuğumun hiç önemi yoktur, daima iyi bir dinleyiciyimdir.

☐ ☐

(d) Hata yaptığımda daima itiraf etmek isterim.

☐ ☐

(e) Başkalarına verdiğim öğütleri daima kendim de uygulamaya çalışırım.

☐ ☐

(f) Hatalarımdan dolayı başka birinin cezalandırılmasına seyirci kalmayı asla düşünmedim.

☐ ☐

(g) Diğer insanlar benimkinden çok farklı fikirler ileri sürdüğünde hiç canım sıkılmaz.

☐ ☐

26. Kendinizi ne kadar dindar görüyorsunuz?

- ☐ Son derece dindar
- ☐ Dindar
- ☐ Biraz dindar
- ☐ Hiç dindar görmüyorum

27. Anketin giriş bölümünü okuduktan sonra anket ile ilgili izleniminiz ne oldu?

- ☐ Çok ilginç buldum
- ☐ İlginç buldum
- ☐ Biraz ilginç buldum
- ☐ Hiç ilginç bulmadım

28. Hatırlayacağınız gibi anketin başında anketin “öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları” ile ilgili olduğunu belirtmiştik. Bu konu için sizce aşağıdaki hangi tanımlama uygundur?

- ☐ Oldukça hassas bir konu
- ☐ Biraz hassas bir konu
- ☐ Hiçbir şekilde hassas bir konu değil

29. Bu anketin ne kadar zamanınızı aldığını düşünüyorsunuz?

- ☐ Çok fazla zamanımı aldı
- ☐ Makul bir zaman aldı
- ☐ Beklediğimden daha az zamanımı aldı

## **APPENDIX D. 2012 Argentina GSHS Questionnaire**



# Global School-based Student Health Survey (GSHS)

## 2012 Argentina GSHS Questionnaire

For more information:  
[www.cdc.gov/gshs](http://www.cdc.gov/gshs) or  
[www.who.int/chp/gshs/en/](http://www.who.int/chp/gshs/en/)



## 2012 ARGENTINA GLOBAL SCHOOL-BASED STUDENT HEALTH SURVEY

This survey is about your health and the things you do that may affect your health. Students like you all over your country are doing this survey. Students in many other countries around the world also are doing this survey. The information you give will be used to develop better health programs for young people like yourself.

DO NOT write your name on this survey or the answer sheet. The answers you give will be kept private. No one will know how you answer. Answer the questions based on what you really know or do. There are no right or wrong answers.

Completing the survey is voluntary. Your grade or mark in this class will not be affected whether or not you answer the questions. If you do not want to answer a question, just leave it blank.

Make sure to read every question. Fill in the circles on your answer sheet that match your answer. Use only the pencil you are given. When you are done, do what the person who is giving you the survey says to do.

Here is an example of how to fill in the circles:

Fill in the circles like this



Not like this



or



Survey

1. Do fish live in water?
  - A. Yes
  - B. No

Answer sheet

1. ☒ (B) (C) (D) (E) (F) (G) (H)

Thank you very much for your help.



1. How old are you?

- A. 11 years old or younger
- B. 12 years old
- C. 13 years old
- D. 14 years old
- E. 15 years old
- F. 16 years old or older

2. What is your sex?

- A. Male
- B. Female

3. In what grade are you?

- A. 8<sup>th</sup> grade of Primary School or 1<sup>st</sup> year of High School
- B. 9<sup>th</sup> grade of Primary School or 2<sup>nd</sup> year of High School
- C. 1<sup>st</sup> year polimodal or 3<sup>rd</sup> year of High School

4. Which is the highest education level attained by your father or male guardian?

- A. Incomplete Primary School
- B. Complete Primary School
- C. Incomplete High School
- D. Complete High School
- E. Incomplete University
- F. Complete University
- G. I do not know

5. Which is the highest education level attained by your mother or female guardian?

- A. Incomplete Primary School
- B. Complete Primary School
- C. Incomplete High School
- D. Complete High School
- E. Incomplete University
- F. Complete University
- G. I do not know

The next 3 questions ask about your height, weight, and going hungry.

6. How tall are you without your shoes on? ON THE ANSWER SHEET, WRITE YOUR HEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

**Example**

| Height (cm)                      |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|
| <b>1</b>                         | <b>5</b>                         | <b>3</b>                         |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input checked="" type="radio"/> | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | I do not know                    |                                  |

7. How much do you weigh without your shoes on?  
ON THE ANSWER SHEET, WRITE YOUR WEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

**Example**

| Weight (kg)                      |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|
| <b>0</b>                         | <b>5</b>                         | <b>2</b>                         |
| <input checked="" type="radio"/> | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | <input type="radio"/>            | <input checked="" type="radio"/> |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
|                                  | <input checked="" type="radio"/> | <input type="radio"/>            |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
|                                  | <input type="radio"/>            | <input type="radio"/>            |
| <input type="radio"/>            | I do not know                    |                                  |

8. During the past 30 days, how often did you go hungry because there was not enough food in your home?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

**The next 4 questions ask about what you might eat and drink.**

9. During the past 30 days, how many times per day did you **usually** eat fruit, such as apples, bananas, oranges, and mandarins?

- A. I did not eat fruit during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

10. During the past 30 days, how many times per day did you **usually** eat vegetables, such as lettuce, tomatoes, carrots, and pumpkin?

- A. I did not eat vegetables during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

11. During the past 30 days, how many times per day did you **usually** drink carbonated soft drinks, such as Coke, Pepsi, Sprite, and Fanta? (Do **not** include diet soft drinks.)

- A. I did not drink carbonated soft drinks during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

12. During the past 7 days, on how many days did you eat food from a fast food restaurant, such as McDonalds or Burger King?

A. 0 days  
B. 1 day  
C. 2 days  
D. 3 days  
E. 4 days  
F. 5 days  
G. 6 days  
H. 7 days

**The next 4 questions ask about cleaning your teeth and washing your hands.**

13. During the past 30 days, how many times per day did you **usually** clean or brush your teeth?

A. I did not clean or brush my teeth during the past 30 days  
B. Less than 1 time per day  
C. 1 time per day  
D. 2 times per day  
E. 3 times per day  
F. 4 or more times per day

14. During the past 30 days, how often did you wash your hands before eating?

A. Never  
B. Rarely  
C. Sometimes  
D. Most of the time  
E. Always

15. During the past 30 days, how often did you wash your hands after using the toilet or latrine?

A. Never  
B. Rarely  
C. Sometimes  
D. Most of the time  
E. Always

16. During the past 30 days, how often did you use soap when washing your hands?

A. Never  
B. Rarely  
C. Sometimes  
D. Most of the time  
E. Always

**The next question asks about going to the dentist.**

17. When was the last time you saw a dentist for a check-up, exam, teeth cleaning, or other dental work?

A. During the past 12 months  
B. Between 12 and 24 months ago  
C. More than 24 months ago  
D. Never  
E. I do not know

**The next 5 questions ask about vaccinations.**

18. Are you required to receive National Immunization Program's vaccines?

A. Yes  
B. No  
C. I do not know

19. Are the National Immunization Program's vaccines free?

A. Yes  
B. No  
C. I do not know

20. Are there vaccines for all stages in life?

A. Yes  
B. No  
C. I do not know

21. Where did you learn the most about the National Immunization Program? (Select only one response.)

- A. At school
- B. On television
- C. From my parents
- D. On the internet
- E. From magazines/newspapers/outdoor billboards or signs/ posters or signs in hospitals/schools
- F. From a doctor or nurse
- G. From somewhere else
- H. I have not learned about the National Immunization Program

22. Were you vaccinated when you were 11 years old?

- A. Yes
- B. No
- C. I do not know

**The next question asks about physical attacks. A physical attack occurs when one or more people hit or strike someone, or when one or more people hurt another person with a weapon (such as a stick, knife, or gun). It is not a physical attack when two students of about the same strength or power choose to fight each other.**

23. During the past 12 months, how many times were you physically attacked?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

**The next question asks about physical fights. A physical fight occurs when two students of about the same strength or power choose to fight each other.**

24. During the past 12 months, how many times were you in a physical fight?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

**The next 3 questions ask about serious injuries that happened to you. An injury is serious when it makes you miss at least one full day of usual activities (such as school, sports, or a job) or requires treatment by a doctor or nurse.**

25. During the past 12 months, how many times were you seriously injured?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

26. During the past 12 months, what was the most serious injury that happened to you?

- A. I was not seriously injured during the past 12 months
- B. I had a broken bone or a dislocated joint
- C. I had a cut or stab wound
- D. I had a concussion or other head or neck injury, was knocked out, or could not breathe
- E. I had a gunshot wound
- F. I had a bad burn
- G. I was poisoned or took too much of a drug
- H. Something else happened to me

27. During the past 12 months, **what was the major cause** of the most serious injury that happened to you?

- A. I was not seriously injured during the past 12 months
- B. I was in a motor vehicle accident or hit by a motor vehicle
- C. I fell
- D. Something fell on me or hit me
- E. I was attacked or abused or was fighting with someone
- F. I was in a fire or too near a flame or something hot
- G. I inhaled or swallowed something bad for me
- H. Something else caused my injury

**The next 2 questions ask about bullying. Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. It is not bullying when two students of about the same strength or power argue or fight or when teasing is done in a friendly and fun way.**

28. During the past 30 days, on how many days were you bullied?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

29. During the past 30 days, how were you bullied **most often**?

- A. I was not bullied during the past 30 days
- B. I was hit, kicked, pushed, shoved around, or locked indoors
- C. I was made fun of because of my race, nationality, or color
- D. I was made fun of because of my religion
- E. I was made fun of with sexual jokes, comments, or gestures
- F. I was left out of activities on purpose or completely ignored
- G. I was made fun of because of how my body or face looks
- H. I was bullied in some other way

**The next 2 questions ask about riding in a motor vehicle.**

30. During the past 30 days, how often did you use a seat belt when riding in a car or other motor vehicle driven by someone else?

- A. I did not ride in a motor vehicle driven by someone else
- B. Never
- C. Rarely
- D. Sometimes
- E. Most of the time
- F. Always

31. During the past 30 days, how often did you ride in a car or other motor vehicle driven by someone who had been drinking alcohol?

- A. I did not ride in motor vehicle driven by someone else
- B. 0 times
- C. 1 time
- D. 2 or 3 times
- E. 4 or 5 times
- F. 6 or more times

**The next 7 questions ask about your feelings and friendships.**

32. During the past 12 months, how often have you felt lonely?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

33. During the past 12 months, how often have you been so worried about something that you could not sleep at night?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

34. During the past 12 months, did you ever feel so sad or hopeless almost every day for **two weeks or more in a row** that you stopped doing some usual activities?

- A. Yes
- B. No

35. During the past 12 months, did you ever **seriously** consider attempting suicide?

- A. Yes
- B. No

36. During the past 12 months, did you make a plan about how you would attempt suicide?

- A. Yes
- B. No

37. During the past 12 months, how many times did you actually attempt suicide?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or more times

38. How many close friends do you have?

- A. 0
- B. 1
- C. 2
- D. 3 or more

**The next 7 questions ask about cigarette and other tobacco use.**

39. How old were you when you first tried a cigarette?

- A. I have never smoked cigarettes
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 years old or older

40. During the past 30 days, on how many days did you smoke cigarettes?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

41. During the past 30 days, on how many days did you use any tobacco products other than cigarettes, such as pipes, roll your own cigarettes, or smokeless tobacco?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

42. During the past 30 days, did anyone refuse to sell you cigarettes because of your age?

- A. I did not try to buy cigarettes during the past 30 days
- B. Yes, someone refused to sell me cigarettes because of my age
- C. No, my age did not keep me from buying cigarettes

43. During the past 12 months, have you ever tried to stop smoking cigarettes?

- A. I have never smoked cigarettes
- B. I did not smoke cigarettes during the past 12 months
- C. Yes
- D. No

44. During the past 7 days, on how many days have people smoked in your presence?

- A. 0 days
- B. 1 or 2 days
- C. 3 or 4 days
- D. 5 or 6 days
- E. All 7 days

45. Which of your parents or guardians use any form of tobacco?

- A. Neither
- B. My father or male guardian
- C. My mother or female guardian
- D. Both
- E. I do not know

**The next 8 questions ask about drinking alcohol. This includes drinking wine, beer, whiskey, gin, or vodka. Drinking alcohol does not include drinking a few sips of wine for religious purposes. A "drink" is a glass of wine, a bottle of beer, a small glass of liquor, or a mixed drink.**

46. How old were you when you had your first drink of alcohol other than a few sips?

- A. I have never had a drink of alcohol other than a few sips
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 years old or older

47. During the past 30 days, on how many days did you have at least one drink containing alcohol?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

48. During the past 30 days, on the days you drank alcohol, how many drinks did you **usually** drink per day?

- A. I did not drink alcohol during the past 30 days
- B. Less than one drink
- C. 1 drink
- D. 2 drinks
- E. 3 drinks
- F. 4 drinks
- G. 5 or more drinks

49. During the past 30 days, how did you **usually** get the alcohol you drank? SELECT ONLY ONE RESPONSE.

- A. I did not drink alcohol during the past 30 days
- B. I bought it in a store, shop, or from a street vendor
- C. I gave someone else money to buy it for me
- D. I got it from my friends
- E. I got it from my family
- F. I stole it or got it without permission
- G. I got it some other way

50. What type of alcohol do you usually drink?  
SELECT ONLY ONE RESPONSE.

- A. I do not drink alcohol
- B. Beer, lager, or stout
- C. Wine
- D. Spirits, such as vodka, whiskey, gin, or Fernet
- E. Sangria or other wine drink
- F. Gancia or Cinzano
- G. Some other type

51. During the past 30 days, did anyone refuse to sell you alcohol because of your age?

- A. I did not try to buy alcohol during the past 30 days
- B. Yes, someone refused to sell me alcohol because of my age
- C. No, my age did not keep me from buying alcohol

**Staggering when walking, not being able to speak right, and throwing up are some signs of being really drunk.**

52. During your life, how many times did you drink so much alcohol that you were really drunk?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 or more times

53. During your life, how many times have you got into trouble with your family or friends, missed school, or got into fights, as a result of drinking alcohol?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 or more times



**The next question asks about how often you see alcohol advertisements on videos, magazines, or the internet or at movie theaters, sports events, or music concerts.**

54. During the past 30 days, how often did you see any alcohol advertisements?

- A. Never
- B. Rarely
- C. Sometimes
- D. Almost daily
- E. Daily

**The next 6 questions ask about drug use. This includes using marijuana, amphetamines, cocaine, inhalants, paco, and ecstasy.**

55. How old were you when you first used drugs?

- A. I have never used drugs
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 years old or older

56. During your life, how many times have you used marijuana (also called porro)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

57. During the past 30 days, how many times have you used marijuana (also called porro)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

58. During your life, how many times have you used amphetamines or methamphetamines?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

59. During your life, how many times have you used ecstasy (also bicho)?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

60. During your life, how many times have you used paco?

- A. 0 times
- B. 1 or 2 times
- C. 3 to 9 times
- D. 10 to 19 times
- E. 20 or more times

**The next 7 questions ask about sexual intercourse.**

61. Have you ever had sexual intercourse?

- A. Yes
- B. No

62. How old were you when you had sexual intercourse for the first time?

- A. I have never had sexual intercourse
- B. 11 years old or younger
- C. 12 years old
- D. 13 years old
- E. 14 years old
- F. 15 years old
- G. 16 years old or older

63. During your life, with how many people have you had sexual intercourse?

- A. I have never had sexual intercourse
- B. 1 person
- C. 2 people
- D. 3 people
- E. 4 people
- F. 5 people
- G. 6 or more people

64. The **last time** you had sexual intercourse, did you or your partner use a condom or forro?

- A. I have never had sexual intercourse
- B. Yes
- C. No

65. During the past 12 months, did you have sexual intercourse?

- A. Yes
- B. No

66. During the past 12 months, how often did you or your partner use a condom or forro when you have sexual intercourse?

- A. I have never had sexual intercourse
- B. I had sexual intercourse but not during the past 12 months
- C. Never
- D. Rarely
- E. Sometimes
- F. Most of the times
- G. Always

67. The **last time** you had sexual intercourse, did you or your partner use any other method of birth control, such as withdrawal, rhythm (safe time), birth control pills, or any other method to prevent pregnancy?

- A. I have never had sexual intercourse
- B. Yes
- C. No
- D. I do not know

**The next 4 questions ask about HIV infection or AIDS.**

68. Have you ever heard of HIV infection or the disease called AIDS?

- A. Yes
- B. No

69. During this school year, were you taught in any of your classes about HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

70. During this school year, were you taught in any of your classes how to avoid HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

71. Have you ever talked about HIV infection or AIDS with your parents or guardians?

- A. Yes
- B. No

**The next 3 questions ask about physical activity. Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, playing with friends, or walking to school. Some examples of physical activity are running, fast walking, biking, dancing, and playing football.**

72. During the past **7 days**, on how many days were you physically active for a total of at least 60 minutes per day? ADD UP ALL THE TIME YOU SPENT IN ANY KIND OF PHYSICAL ACTIVITY EACH DAY.

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

73. During the past 7 days, on how many days did you walk or ride a bicycle to or from school?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

74. During this school year, on how many days did you go to physical education (PE) class each week?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 or more days

**The next question asks about the time you spend mostly sitting when you are not in school or doing homework.**

75. How much time do you spend during a **typical or usual** day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities, such as reading a book or chatting?

- A. Less than 1 hour per day
- B. 1 to 2 hours per day
- C. 3 to 4 hours per day
- D. 5 to 6 hours per day
- E. 7 to 8 hours per day
- F. More than 8 hours per day

**The next 6 questions ask about your experiences at school and at home.**

76. During the past 30 days, on how many days did you miss classes or school without permission?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 or more days

77. During the past 30 days, how often were most of the students in your school kind and helpful?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

78. During the past 30 days, how often did your parents or guardians check to see if your homework was done?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

79. During the past 30 days, how often did your parents or guardians understand your problems and worries?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

80. During the past 30 days, how often did your parents or guardians **really** know what you were doing with your free time?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

81. During the past 30 days, how often did your parents or guardians go through your things without your approval?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

**APPENDIX E: Article from the Dissertation**



## A Relational Framework between Survey Topic, Sponsor, and Socially Desirable Responding: An Online Survey Experiment <sup>12</sup>

Abdirahman Saeed MOHAMED <sup>3</sup> - Tuğba ADALI <sup>4</sup>

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### Abstract

*Research in survey methodology indicates that survey attributes, such as topic and sponsor influence survey participation and data quality. This paper primarily aims to examine whether such attributes influence socially desirable responding in an online survey setting, a setting which is less studied in the literature than face-to-face interview settings with regards to social desirability. To achieve this aim, it empirically tests the effects of survey topic, survey sponsor, introduction interest, and perceived topic sensitivity on socially desirable responding (SDR) across a range of items in a questionnaire. The survey experiment is based on a convenience sample of higher education students who filled out an online self-administered questionnaire, which also included a short version of the Marlowe-Crowne SDR scale. The findings showed that the tendency to SDR does not significantly differ by survey topic and sponsor. However, it varies by introduction interest, and intriguingly, more interested respondents demonstrated a higher tendency to SDR. Also, the tendency to SDR marginally differed by the perceived topic sensitivity.*

**Keywords:** Socially Desirable Responding, Survey Topic, Sponsor, Topic Sensitivity, Introduction Interest

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<sup>1</sup> The study was taken (issue E-35853172-010.99-00001563988; date: April 27, 2021) from Hacettepe Üniversitesi Senatosu Etik Komisyonu.

<sup>2</sup> This article is part of the PhD thesis titled "Investigating Mechanisms of Social Desirability Bias in a self-administered questionnaire" prepared by Abdirahman Saeed Mohamed, at Hacettepe University, Institute of Population Studies, Department of Social Research Methodology, Ankara, Turkey.

<sup>3</sup> PhD candidate at Hacettepe University Institute of Population Studies Department of Social Research Methodology, [sashraf18@yahoo.com](mailto:sashraf18@yahoo.com), ORCID: 0000-0001-8699-0903

<sup>4</sup> Hacettepe University Institute of Population Studies Department of Social Research Methodology (The author is currently working at the University College London, Centre for Longitudinal Studies), [tug.adali@gmail.com](mailto:tug.adali@gmail.com), ORCID: 0000-0002-1135-5638

## Anket Konusu, Sponsor ve Sosyal İstenirlik Arasındaki İlişkisel Çerçeve: Çevrimiçi bir Anket Deneyi

Abdirahman Saeed MOHAMED <sup>5</sup> - Tuğba ADALI <sup>6</sup>

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### Öz

Nicel araştırma yöntemliliği alanındaki araştırmalar, anket konusu ve anketi destekleyen kurum gibi özelliklerin anket katılımını ve veri kalitesini etkilediğini göstermektedir. Bu makale temel olarak bu gibi özelliklerin çevrimiçi ortamda sosyal istenirlik davranışını (sosyal istenirliği olan yanıtları seçme eğilimi) etkileyip etkilemediğini incelemeyi amaçlamaktadır. Bu konuya literatürde çevrimiçi anketlerden çok, yüzyüze anket çalışmaları için odaklanılmaktadır. Makalenin amacına uygun olarak, anket konusunun, destekleyen kurumun, katılımcıların anketin tanıtımına yönelik ilgisinin ve anket konusunu ne kadar hassas algıladıklarının sosyal istenirlik davranışına etkisi ampirik olarak bir anketteki sorulara verilen yanıtlar ile test edilmiştir. Çalışma, lisans ve lisansüstü öğrencilerinden oluşan bir örneklemden deneysel bir nicel araştırma tasarımıyla toplanan çevrimiçi bir anketin verilerine dayanmaktadır. Bu ankette ayrıca Marlowe-Crowne sosyal istenirlik ölçeğinin bir kısa versiyonu da bulunmaktadır. Bulgulara göre, sosyal istenirlik davranışı, anketin konusu ve destekleyen kuruma göre önemli ölçüde farklılaşmamaktadır. Sosyal istenirliğe yönelik eğilim anketin tanıtımına duyulan ilgiye göre farklılık göstermiştir, fakat beklenmedik bir şekilde ankete ilgisi daha yüksek olan katılımcıların sosyal istenirliğe yönelik eğilimlerinin de daha yüksek olduğu görülmüştür. Son olarak, sosyal istenirlik davranışı, konunun ne kadar hassas algılandığına göre az da olsa farklılık göstermektedir.

**Anahtar Kelimeler:** Sosyal İstenirlik, Nicel Araştırma, Anket Konusu, Anketi Destekleyen Kuruluş, Anket Konusu Hassaslığı, Anket Tanıtımına Duyulan İlgi

<sup>5</sup> Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri Anabilim Dalı Doktora Öğrencisi, [sashraf18@yahoo.com](mailto:sashraf18@yahoo.com), ORCID: 0000-0001-8699-0903

<sup>6</sup> Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri Bölümü, [tug.adali@gmail.com](mailto:tug.adali@gmail.com), ORCID: 0000-0002-1135-5638

## Introduction

It has been shown that internet-based surveys are not immune to socially desirable responding (SDR) (Das and Leeuw, 2018; Dodou and De Winter, 2014; Näher and Krumpal, 2012). Socially desirable responding, also known as social desirability bias, is the tendency of some respondents to provide answers they consider to be socially favorable and avoid answers that might conflict with the prevailing social norms (Krumpal, 2013). SDR is a classical response bias that represents a serious measurement error concern in social survey research for its ability to influence survey results (Larson, 2019; Stocké and Hunkler, 2007; van de Mortel, 2008). SDR is a response bias that is interpreted in various ways, such as the need for social approval (Crowne and Marlowe, 1960), faking good (Furnham, 1986), presenting oneself in a positive light (Hays et al., 1989), and the disposition to give exaggerated positive self-descriptions (Paulhus, 2002). Broadly, the term SDR refers to the inclination of respondents to give answers that they consider to be desirable. This may be interpreted as the eagerness of individuals to attribute to themselves the qualities, behaviors, and attitudes they consider to be desirable in their communities.

The research on SDR shows that it differs by mode of data collection (Gnambs and Kaspar, 2014; Holbrook et al., 2003; Kelly et al., 2013; Vogl, 2013), and some respondent characteristics, such as age (Soubelet and Salthouse, 2011; Stöber, 2001; Vigil-Colet et al., 2013), sex (Caskie et al., 2014), and education (Deshields et al., 1995). The present study has a three-fold objective and examines whether a systematic tendency to SDR across a range of items differs by survey topic and sponsor<sup>7</sup>, introduction interest, and the perceived topic sensitivity, and contributes to the research on the effects of survey topic and sponsor on response behavior. Here we conceptualize systematic tendency to SDR in line with the definition by Paulhus (1991, p. 17): “A response bias is a systematic tendency to respond to a range of questionnaire items on some basis other than the specific item content”. We use this terminology throughout this paper to imply consistently selecting socially desirable answers across a range of 14 items.

## Survey Topic

The survey attributes that are made more salient in the survey introduction would have more leverage on the respondent's survey participation decision (Groves et al., 2000). People are more cooperative and willing to participate in a survey when the survey topic interests them (Groves et al., 2004). Therefore, respondents who find the survey topic interesting show a higher response rate than less interested respondents. Moreover, the respondents who are less interested in the survey topic are more likely to produce item nonresponse as reported by Martin (1994) in a mail survey while individuals with high interest in the survey topic tended less to straight-lining in online panels (Keusch, 2013).

To examine the effect of the topic on a systematic tendency to SDR, the present study adopts the leverage-salience theory (Groves et al., 2000) which explains the potential effects of survey attributes on survey participation. In summary, the leverage-salience theory proposes that if the survey attributes (such as survey topic and sponsor, etc.) are presented salient enough in a personal interview or a self-administered questionnaire, they could influence the survey participation decision for sample members (Groves et al., 2000).

<sup>7</sup> Unlike how this usually is, the term “sponsor” in this particular study does not imply funding. The survey experiment in this study was carried out without funding, and survey sponsor here is operationally defined as the institution/person on whose behalf the survey is done.



First, as the literature indicates the influence of the survey topic is contingent on the personal interest in the survey topic (Groves et al., 2004) and whether the topic is presented salient enough (Groves et al., 2000). When the survey topic is presented salient enough in a survey introductory statement, respondents attach dissimilar interest to the survey topic as confirmed by the literature. Hence, based on the individual interest in the survey topic, the present study contends that respondents who are less interested in the topic are likely to introduce a systematic tendency to SDR.

**H<sub>1</sub>:** a systematic tendency to SDR varies by the survey topic presented in the survey introduction.

### **Sponsor**

Studies on mail surveys have shown that survey sponsorship influences participation and data quality. A study by Doob and Freedman (1973) on a mail survey revealed that people are more eager to respond to survey requests from a university compared to survey requests from private companies. Likewise, Jones (1979), Jones and Linda (1978) reported sponsorship effects on response rates. Ladik et al. (2007) reported university sponsorship effects differed by city, where the home city of the sponsoring university had a higher response rate than out-of-state cities. Also, Tourangeau et al. (2009) indicated that respondents were less likely to approve gun control when the survey sponsor was described as “the national coalition of gun owners” compared to “the national coalition for victims of gun violence” or “the national center for the study of crime”. Following the hypotheses of the leverage-salience theory presented in the previous section, we propose that when the sponsor has leverage on the sample members that could influence their response behavior. And the greater leverage the survey sponsor has on the prospective respondents, the greater the respondents may tend to SDR.

**H<sub>2</sub>:** the greater leverage the survey sponsor has on the prospective respondents, the more tendency to a systematic SDR.

### **Introduction Interest**

In self-administered questionnaires, respondent motivation is an important determinant of data quality (Cannell and Fowler, 1963). For example, less interested respondents tend to introduce more response bias (Bach et al., 2020) and leave some questions unanswered. Respondents' interactions with the survey introductory statement are associated with their subsequent response behaviors in a survey interview. Respondents who appeared less interested in the introductory stage were found to introduce more bias during the interview in an earlier study (Couper, 1997). In this study, the topic of the survey was revealed in the title of the survey and repeated as part of the informed consent text. We assume that respondents form an overall interest in the survey based on these, and describe later how we operationally defined it under the Independent Variables section. Based on the overall interest of the respondent in a survey which forms after the survey introductory statement is presented, the present study splits respondents into optimizers and reluctant respondents (see Figure 1).

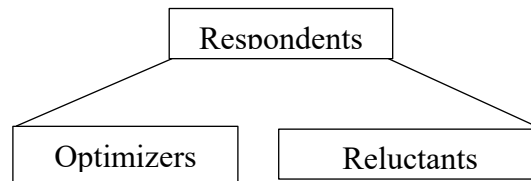


Figure 1. Categorization of Respondents Based on the Introduction Interest

Krosnick (1991) defines optimizers as those who carefully complete a four-step cognitive process (comprehension, retrieval, judgment, and reporting) necessary for the question-answer process. Here, we build on his definition and define the optimizers group as those who find the survey interesting and respond to survey questions with honesty. Also, as a result, they are less likely to introduce response biases, such as SDR. The second group is reluctant respondents and they find the survey less interesting compared to the optimizers group, hence, they may join the survey with hesitation. Bach et al. (2020) define reluctant respondents as “respondents with the lowest response propensities are reluctant respondents”. Here, we define reluctant respondents as those who are less interested in the survey but join the survey with hesitation. We assume that this group is susceptible to introducing response biases like a systematic tendency to SDR. Third, when the sponsor has leverage on the sample members that might influence their response behavior.

**H<sub>3</sub>:** the less interesting the survey introductory statement is to the respondents, the more tendency to a systematic SDR.

### Perceived Topic Sensitivity

SDR is mostly linked to sensitive topics (Tourangeau and Yan, 2007) or embarrassing and threatening topics (Bradburn et al., 2004; Cannell and Fowler, 1963). However, every topic might have some degree of sensitivity and that sensitivity might differ for sample members. In line with the literature, the current study hypothesizes that:

**H<sub>4</sub>:** the greater the perceived topic sensitivity, the greater the tendency to a systematic SDR.

### Experimental Design

This study draws on data collected through an online factorial survey experiment in which the survey topic and survey sponsor were experimentally varied (both these variables had 2 levels each). The other independent variables of interest, namely introduction interest and perceived topic sensitivity were measured with single items. The online survey experiment was prepared using Google Forms, a freely available survey tool with many experimental features. To randomly assign the respondents to the experimental treatments, birth by the day of the month was used. Respondents first picked one of 8 groups<sup>8</sup> (1-4, 5-8, 9-12, 13-15, 16-19, 20-23, 24-27, and 28-31), and then were presented with the experimental treatment.

<sup>8</sup> There was a third variable that was experimentally varied about question order, but has not been analysed in this particular paper. This was the reason why there were 8 experimental groups.

### Sample and Data Collection

The online questionnaire and the experimental design were approved by the Hacettepe University Ethics Commission and the consent statement was presented on the first page of the questionnaire. An adequate sample size of 272 was calculated using Minitab 17, to detect an effect size of 0.2 with a power of 0.90 and a significance level of 0.05. On 5<sup>th</sup> May 2021, the Hacettepe University Press and Public Relations office sent the survey link to the Hacettepe University students<sup>9</sup> (undergraduate, Master's degree, and Ph.D.). Out of 62,788 persons, 32 responded and completed the questionnaire in the first contact. A reminder contact was sent on June 22 and 37 responded. To boost the number of responses, a group of Hacettepe University academic staff was contacted who shared the link with the students in their classes. Within a month and a half 318 responded out of an estimated figure of 1336 students reached in this way. The final sample size was 387.

### Dependent Variable

Operationally, a systematic tendency to SDR was defined as the tendency to over-report socially encouraged practices and under-report or deny socially discouraged ones. This definition is in line with the widely used Marlowe-Crowne SDR scale "The need of Ss (subjects) to obtain approval by responding in a culturally appropriate and acceptable manner" (Crowne and Marlowe, 1960, p.353). We dichotomously coded the response categories of the 14 items that we intended to use for measuring the tendency to SDR into two, as desirable or not desirable (where socially desirable=1, socially not desirable=0). And then, we summed the number of socially desirable response categories reported for each respondent across 14 items. Therefore all respondents received a score between 0 and 14 ( $y = 0, 1, 2, \dots, 14$ ) and a respondent whose score was above the mean was considered to demonstrate a tendency to SDR. To determine the direction of SDR, first, if the question addresses socially encouraged activity, the response category that gives the notion of over-reporting was considered a socially desirable answer. Likewise, if the question addresses a socially discouraged activity, the response category that suggests under-reporting or denial was considered a socially desirable response. Second, to get a better idea about the desirability of the response categories from the point of view of the respondents, a group of students from the Hacettepe University Institute of Population Studies, Department for Social Research Methodology was asked to rate the desirability of response categories.

It was kept in mind that a high number of socially desirable answers could also reflect true answers rather than a systematic tendency to SDR. To distinguish between these two explanations, at least to some extent, a Turkish short-version (7-item) of the Marlowe-Crowne SDR scale was added to the questionnaire. The Turkish short-version of the Marlowe-Crowne SDR scale was translated and tested by Ural and Özbirecikli (2006) and has a Cronbach's alpha of 0.78. All 7 items were truly keyed and dichotomously scored. A total score was calculated for each respondent. A respondent who scored above the average score of the Marlowe-Crowne SDR short scale and provided socially desirable answers above the average score across a range of 14 questions was considered that s/he tended to a systematic SDR.

### Independent Variables

In the online survey experiment, the survey topic and sponsor were experimentally varied and each variable had two levels. Respondents were assigned to questionnaires with the same questions, but different

<sup>9</sup> We were notified that that the email list (62,788) may have contained some graduates, but do not have information on the extent of this.

combinations of survey topic and sponsor. Compared to the “social life of students during the distance education process of COVID-19 pandemic”, we assume that the “focus during online classes” to be more sensitive and subsequently produces a higher tendency to a systematic SDR. These were selected that they could attract the interest of the target population during the pandemic, and at the same time have some degree of sensitivity. Both topics were meant to relate to the educational situation during the pandemic, a period when schools and universities around the world were partially or fully closed at times and traditional education was replaced by online education. On the other hand, approval was gained from the Hacettepe University Institute of Population Studies Department of Social Research Methodology to use the name of the department as a treatment in the survey. Considering the relationship between the University and the respondents, we expect that the “Hacettepe University Institute of Population Studies Department of Social Research Methodology” would have more leverage on respondents and that will result in a higher tendency to SDR compared to “Ph.D. thesis” as a sponsor assuming a relatively vertical relationship as opposed to a relatively horizontal one, respectively.

To measure the introduction interest, respondents were asked “What was your impression of the survey after you read the introduction?” with the scaling points “not interesting at all”, “somewhat interesting”, “interesting“, and “very interesting”. Also, another question that measured the perceived topic sensitivity was included in the questionnaire. Respondents were first reminded of the survey topic and thereafter asked to rate the topic sensitivity, for example, one version reading “As you may remember, this survey was about the social life of students during the distance education process of the COVID-19 pandemic, which statement below best describes this topic?” with the scaling points “not sensitive at all”, “sensitive”, and “very sensitive”. Finally, to control fatigue and boredom, the questionnaire was kept relatively short, it consisted of only 34 items in total, and an attention check item was disguised in the questions to screen inattentive responding.

## Results

Overall, 387 respondents joined the online survey experiment and completed the questionnaire. A duplicate case was dropped from the analysis and the final sample size was 386 cases. As shown in Table 1, the sample was predominantly female 67%, which is consistent with the literature. Traditionally, women participate more than men in face-to-face interviews (Leeuw, 1992). However, as in the current case, Smith (2008), and Underwood et al. (2000) reported that women are more inclined to participate in online surveys and also Larson (2019) reported that in a web-based survey of U.S. adults, about 67% of the respondents were women. The average age of the respondents was 22 years old with (a standard deviation of 3) and 83% were undergraduate students, 7% were master’s degree students, and 2% were Ph.D. students. Due to a technical error that occurred during the data collection 8% did not report their level of education<sup>10</sup>. The respondents were from different fields, but they were mainly from health and social sciences. For the type of device used to connect online classes, the majority 86% were using a laptop/desktop computer, 4% tablet, 10% mobile phone, and only 0.3% could not connect to online classes.

<sup>10</sup> The level of education question was mistakenly not included in the first version questionnaire and it was added to the questionnaire after 32 questionnaires were received.

Table 1  
Background Characteristics of Respondents

| Variable                               | Number | Percentage |
|----------------------------------------|--------|------------|
| Sex                                    |        |            |
| Female                                 | 260    | 67.36      |
| Male                                   | 119    | 30.83      |
| Prefer not to say                      | 7      | 1.81       |
| Age                                    |        |            |
| 17-21 yrs. old                         | 178    | 46.11      |
| 22-26 yrs. old                         | 184    | 47.67      |
| 27 yrs. old and above                  | 24     | 6.22       |
| Field of study                         |        |            |
| Education sciences                     | 18     | 4.66       |
| Engineering sciences                   | 36     | 9.33       |
| Health sciences                        | 95     | 24.61      |
| Social sciences                        | 125    | 32.38      |
| Sport sciences                         | 41     | 10.62      |
| Art sciences                           | 3      | 0.78       |
| Other                                  | 68     | 17.62      |
| Level of education                     |        |            |
| Bachelor                               | 319    | 82.64      |
| Master                                 | 27     | 6.99       |
| PhD                                    | 8      | 2.07       |
| Missing                                | 32     | 8.29       |
| Type of device used for online classes |        |            |
| I cannot connect to online classes     | 1      | 0.30       |
| Mobile                                 | 38     | 9.80       |
| Tablet                                 | 17     | 4.40       |
| Desktop computer/laptop                | 330    | 85.50      |
| Total                                  | 386    | 100.00     |

### Systematic Tendency to SDR across a Range of Items

To gauge a systematic tendency to SDR, 14 items were placed in the experimental questionnaire. The items were selected, primarily, on the premise that they are susceptible to SDR and it is easier to determine the direction of socially desirable responding. For each item, the response category that hinted at the over-reporting of socially encouraged behaviors and attitudes was coded 1, and the other response options were coded 0. For example, when asked “During the 2020-2021 fall semester, how many hours a day do you read for academic purposes?” the response option “5 hours and above” was coded 1 and all other response categories were coded 0. Likewise, the response category that hinted at under-reporting or denial of socially undesirable behaviors and attitudes was coded 1 and the other response options were coded 0. For instance, when asked the “In general, do you browse social media platforms like Facebook, Instagram, or Twitter during online class?” the response option “No” was coded 1, and “Yes” was coded 0. Items were summed and a total score indicates the number of socially desirable responses out of 14 items. For the item “Are you currently in a

romantic relationship?” determining the direction of a socially desirable responding was complex compared to the other items. The complexity comes from the differences in the direction of socially desirable responses by sex. As an example of related literature, Tourangeau and Smith (1996) found that women tend to under-report the number of sexual partners while men are inclined to over-report. Findings from Smith (1992) were similar. From a cultural perspective, this might be because women receive more negative judgment than men in terms of romantic relationships (England and Bearak, 2014; Smith, 1992). As a result, the direction of socially desirable responding should be evaluated from the point of view of both sexes. In this study, respondents were asked to report their lifetime number of romantic relationships. Table 2 shows that women reported not having any romantic relationships more often and men more frequently reported 3 and above romantic relationships. Though the differences between men and women in reporting lifetime romantic relationship is not statistically significant ( $\chi^2 = 4.23$ ,  $p = 0.238$ ). This variable has been still coded for socially desirable direction separately by sex because of differences in point estimates.

Table 2

Number of Reported Lifetime Romantic Relationships by Sex

| Number of lifetime romantic relationships |    |      |     |      |    |      |             |      |       |       |
|-------------------------------------------|----|------|-----|------|----|------|-------------|------|-------|-------|
|                                           | 0  |      | 1   |      | 2  |      | 3 and above |      |       |       |
| Sex                                       | n  | %    | n   | %    | n  | %    | n           | %    | Total |       |
| Female                                    | 65 | 25.1 | 74  | 28.6 | 52 | 20.1 | 68          | 26.3 | 259   | 100.0 |
| Male                                      | 23 | 19.7 | 28  | 23.9 | 24 | 20.5 | 42          | 35.9 | 117   | 100.0 |
| Total                                     | 88 | 23.4 | 102 | 27.1 | 76 | 20.2 | 110         | 29.3 | 376   | 100.0 |

 $\chi^2_{(3)} = 4.23$   $p = 0.238$ 

Table 3 shows that the proportion of desirable answers differs by item and respondents responded to the socially desirable direction when asked, “During the distance education process of the current COVID-19 pandemic, have you ever searched for answers to questions during an online exam from a written source or on the internet?” About 54 % reported negative answers but the intriguing result is that 46 % of the respondents confirmed that they looked up answers to questions while taking an online exam. The high proportion of positive responses to this question is probably because self-administered modes give respondents more privacy and anonymity.

Table 3

Proportions of Respondents who responded in the Socially Desirable Direction by Item

| No | Item                                                                                                                                                                                                      | Socially desirable<br>Response option  | %    | cases |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|------|-------|
| 1  | What is the main reason you chose your field of study?                                                                                                                                                    | To help the community<br>I live within | 18.0 | 69    |
| 2  | On average, how much time do you allocate for distance education per day?                                                                                                                                 | 5 hours and above                      | 27.7 | 106   |
| 3  | In general, how would you evaluate your time management during the distance education process?                                                                                                            | Very good                              | 12.5 | 48    |
| 4  | In the 2020-2021 fall semester, how would you rate your academic cumulative GPA?                                                                                                                          | Very good / Excellent                  | 34.5 | 132   |
| 5  | During online classes, how often do you join classroom discussions?                                                                                                                                       | Every time                             | 12.5 | 48    |
| 6  | In general, how attentive are you during online classes?                                                                                                                                                  | Every time                             | 4.2  | 16    |
| 7  | During the 2020-21 Fall semester, how many hours a day do you spend reading for academic purposes?                                                                                                        | 5 hours and above                      | 24.5 | 94    |
| 8  | In general, do you browse social media platforms like Facebook, Instagram, or Twitter during an online class?                                                                                             | No                                     | 35.5 | 136   |
| 9  | During the distance education process of the current COVID-19 pandemic, have you ever looked up answers to questions in an online exam from a written source or the internet, even though you should not? | No                                     | 53.8 | 206   |
| 10 | In the last 24 hours, have you spent time without wearing a mask with someone who is not currently living in the same home or dormitory as you?                                                           | No                                     | 50.9 | 195   |
| 11 | In the last month, how many days a week did you do physical activity on average to stay healthy and fit?                                                                                                  | 3 days and above                       | 40.7 | 156   |
| 12 | Have you ever smoked cigarettes, even once?                                                                                                                                                               | No                                     | 36.3 | 139   |
| 13 | Have you ever drank alcohol, even once?                                                                                                                                                                   | No                                     | 38.9 | 149   |
| 14 | Are you currently in a romantic relationship?                                                                                                                                                             |                                        |      |       |
|    | Female                                                                                                                                                                                                    | No                                     | 67.6 | 175   |
|    | Male                                                                                                                                                                                                      | Yes                                    | 58.1 | 68    |
|    |                                                                                                                                                                                                           |                                        | n    | 383   |

Nowadays, exercising seems to be a desirable activity as the reasons and benefits of exercising became ubiquitous. Individuals who do not do socially encouraged activities may feel uneasiness and give positive answers to avoid discomfort and tend to promote their picture. For example, a validation study by Brenner and DeLamater, (2014) indicated that respondents tend to exaggerate on reporting exercise activity in a web-based questionnaire. In the present sample, a percentage of 41% reported that they do physical activity for health and fitness purposes “3 days and above” when respondents were asked, “In the last month, on average, how many days a week did you do physical activity to stay healthy and fit?” Regarding cumulative grade point

average (CGPA), 34% of the respondents reported very good or excellent CGPA and 27.5% reported that they read “5 hours and above per day” for academic purposes. Proportions of respondents who responded in the desirable direction was not high in smoking and alcohol consumption 37%, and 39% respectively, and for the rest of the items, the proportions was quite low. Regarding the item addressing spending time with someone without masks, 51% of the respondents said no and this might be reflective as the data were collected at a time when Turkey was in a 17-day lockdown due to the COVID-19 pandemic.

The frequency distribution of socially desirable answers is provided in Table 4. Overall, the results show a low tendency to a systematic SDR, and the majority of the respondents provided 2 to 5 socially desirable answers across a range of 14 items.

Table 4  
Frequency Distribution of Reported Socially Desirable Answers across 14 Items

| Reported number of socially desirable answers across 14 items | Number of respondents | Percentage |
|---------------------------------------------------------------|-----------------------|------------|
| 0                                                             | 6                     | 1.6        |
| 1                                                             | 20                    | 5.2        |
| 2                                                             | 49                    | 12.7       |
| 3                                                             | 72                    | 18.8       |
| 4                                                             | 66                    | 17         |
| 5                                                             | 59                    | 15.4       |
| 6                                                             | 38                    | 9.8        |
| 7                                                             | 28                    | 7.3        |
| 8                                                             | 16                    | 4.1        |
| 9                                                             | 20                    | 5.2        |
| 10                                                            | 7                     | 1.8        |
| 11                                                            | 1                     | 0.3        |
| 12                                                            | 1                     | 0.3        |
| 13                                                            | 0                     | 0          |
| 14                                                            | 0                     | 0          |
| Total                                                         | 383                   | 100.0      |

As mentioned before, the Marlowe-Crowne SDR short scale was also used to classify respondents who demonstrated a systematic tendency to SDR and those who did not. The expectation is that respondents who score high on the Marlowe-Crowne short scale will also tend to systematic SDR and vice versa. When those who scored above the mean on the Marlowe-Crowne SDR short scale is compared to those who scored below the mean, on average the former reported 5 socially desirable answers compared to the latter who provided 4 desirable answers on average. Also, as Figure 2 demonstrates, the observations of those who scored high on the Marlowe-Crowne SDR short-scale were more dispersed than the latter group.



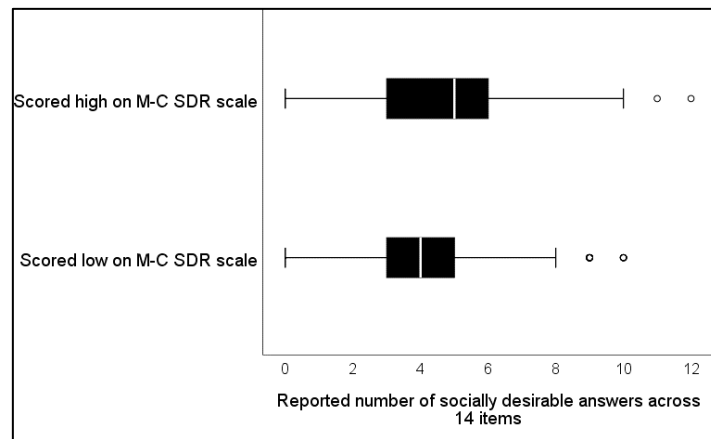


Figure 2. Systematic Tendency to SDR across 14 Items by the Marlowe-Crowne SDR Short Scale

To test whether the systematic tendency to SDR across a range of 14 items significantly differs by the score on the Marlowe-Crowne SDR short scale, a t-test was run, and Levene's test of equality of variance was accepted ( $p=0.981$ ). The mean difference is significant at  $t(381) = 2.74$   $p=0.006$  and the t-test results were still statistically significant at  $t(375) = 2.84$   $p=0.005$  after outliers were controlled for. This result confirms that respondents who scored high on the Marlowe-Crowne SDR short scale also provided more socially desirable response categories across 14 items on average.

Table 5

Average Reported Number of Socially Desirable Responses by the Scores on the M-C SDR Scale

| With outliers |                    |         |                 |            | Without outliers |                    |         |                 |            |
|---------------|--------------------|---------|-----------------|------------|------------------|--------------------|---------|-----------------|------------|
| t value       | Degrees of freedom | P value | Mean difference | Std. error | t value          | Degrees of freedom | p value | Mean difference | Std. error |
| 2.74          | 381                | 0.006   | 0.64**          | 0.23       | 2.84             | 375                | 0.005   | 0.63**          | 0.22       |

Note:  $n=383$

### Interest in the Introductory Statement

Now, we examine whether the tendency to SDR confirmed by Table 5 differs by the introduction interest. We expected that compared to respondents who found the survey interesting (optimizers), respondents who found the survey less interesting (reluctant respondents) will demonstrate a higher systematic tendency to SDR. Contrary to the expectations, respondents who found the survey interesting tended to report more socially desirable responses (not interesting at all has an average of 3.42 SDR responses, somewhat interesting 3.91, interesting 5.04, and very interesting 5.63, not shown in Tables). A one-way ANOVA that tests whether these four means are all equal was found significant (Welch's statistic=15.504,  $p<0.000$ , not shown in tables). The Games-Howell's post-hoc multiple comparisons indicate that the mean values of the first two groups were significantly ( $p<0.000$ ) different from the mean values of the last two groups (see Table 6). A similar association between interest in the survey and the Marlowe-Crowne SDR short-scale was also observed, where those who found the survey interesting scored higher on this scale (findings not shown here).

Table 6

Systematic Tendency to SDR by the Introduction Interest (Post-Hoc Multiple Comparisons)

|                        | Mean value | Pairwise comparisons | Mean difference | Std. error | p-value |
|------------------------|------------|----------------------|-----------------|------------|---------|
| Not interesting at all | 3.42       | Somewhat interesting |                 |            | 0.381   |
|                        |            | Interesting          | -0.50           | 0.31       |         |
|                        |            | Very interesting     | -1.62***        | 0.31       | 0.000   |
| Somewhat interesting   | 3.91       | Very interesting     | -2.21***        | 0.42       | 0.000   |
|                        |            | Interesting          | -1.13***        | 0.26       | 0.000   |
|                        |            | Very interesting     | -1.71***        | 0.38       | 0.000   |
| Interesting            | 5.04       | Very interesting     | -0.59           | 0.39       | 0.436   |
| Very interesting       | 5.63       |                      |                 |            |         |

Note. n = 383. \*\*\*p&lt;0.001.

### Perceived Topic Sensitivity

Even though neither of the experimental topics seems to be sensitive, the majority of the respondents rated them both as either sensitive or very sensitive. However, it is important to mention that the perceived topic sensitivity question was in the last section of the questionnaire. Even though respondents were reminded of the survey topic when this perceived topic sensitivity was asked, they may have been affected by the sensitivity of the items towards the end of the questionnaire.

Table 7

Perceived Topic Sensitivity

| Topic                                                                      | Perceived topic sensitivity |      |           |      |                |      |     | Total |
|----------------------------------------------------------------------------|-----------------------------|------|-----------|------|----------------|------|-----|-------|
|                                                                            | Not sensitivity at all      |      | Sensitive |      | Very sensitive |      |     |       |
|                                                                            | n                           | %    | n         | %    | n              | %    |     |       |
| Focus during online classes                                                | 30                          | 15.3 | 72        | 36.7 | 94             | 48.0 | 196 | 100   |
| Social life of students during the distance education process of corvid 19 | 31                          | 16.6 | 60        | 32.1 | 96             | 51.3 | 187 | 100   |
| Total                                                                      | 61                          | 16.3 | 132       | 34.5 | 190            | 49.6 | 383 | 100   |

 $\chi^2_{(2)} = 0.92$ . p = 0.632.

Concerning perceived topic sensitivity, the respondents perceived the “the social life of students during distance education process of the COVID-19 pandemic” to be slightly more sensitive (see Table 7). To test whether the reported number of socially desirable responses across 14 items vary by the degree of perceived topic sensitivity (not sensitive at all, sensitive, and very sensitive), a one-way ANOVA test was performed. The result shows that the average reported number of socially desirable responses marginally differ by the degree of perceived topic sensitivity (F= 3.121, p=0.045, not shown in tables). Furthermore, Tukey’s post-hoc tests show that those who perceived the survey topic as very sensitive tended more to a systematic SDR (p-value=0.052) (see Table 8).

Table 8

Systematic Tendency to SDR by the Perceived Topic Sensitivity (Post-Hoc Multiple Comparisons)

|                      | Mean value | Pairwise comparisons | Mean difference | Std. error | p-value      |
|----------------------|------------|----------------------|-----------------|------------|--------------|
| Not sensitive at all | 3.97       | Sensitive            | -0.38           | 0.36       | 0.532        |
|                      |            | Very sensitive       | -0.78           | 0.34       | <b>0.052</b> |
| Sensitive            | 4.35       | Very sensitive       | -0.39           | 0.26       | 0.277        |
| Very sensitive       | 4.75       |                      |                 |            |              |

**Topic and Sponsor Effects**

At the item level, the tendency to SDR differs by the topic revealed in the introduction in terms of point estimates which were higher under the topic “social life of students during the distance education process of the COVID-19 pandemic”. Only four items are significant and they are addressing different issues and did not have a common denominator. One item was addressing the reason for the joined field of study and the other two items were related to online learning activities and whether one looked up answers to questions in online exams. The fourth item is about current romantic status and when controlled for sex, it is statistically significant for females.

None of the items showed significant differences by the sponsor, but the point estimates for the number of socially desirable responses were usually higher under the “HUIPS DSRM” compared to Ph.D. as the survey sponsor (see Table 9).

Table 9

Proportions of Respondents who responded in the Desirable Direction at the item level by Topic and Sponsor

| Item                                                                                  | Desirable response option           | Topic     |           | $\chi^2$ | Sponsor        |             | $\chi^2$ |
|---------------------------------------------------------------------------------------|-------------------------------------|-----------|-----------|----------|----------------|-------------|----------|
|                                                                                       |                                     | Topic 1 % | Topic 2 % |          | Ph.D. thesis % | HUIPS RMD % |          |
| Reason for the joined field of study                                                  | To help the community I live within | 14.3      | 21.9      | 3.881*   | 15.9           | 20.7        | 1.487    |
| Number of hours allocated for online classes per day during the fall term 2020-2021   | 5 hours and above                   | 24.5      | 31.0      | 2.036    | 27.6           | 27.8        | 0.003    |
| Time management during the distance education process                                 | Very good                           | 12.2      | 12.8      | 0.030    | 12.1           | 13.0        | 0.065    |
| Cumulative GPA in the fall term 2020-2021                                             | Very good/Excellent                 | 34.2      | 34.8      | 0.014    | 34.1           | 34.9        | 0.027    |
| Joins online class discussions                                                        | Every time                          | 8.2       | 17.1      | 6.991**  | 11.7           | 13.6        | 0.320    |
| Attention during online classes                                                       | Every time                          | 4.1       | 4.3       | 0.009    | 5.6            | 2.4         | 2.477    |
| Uses social media during online classes                                               | No                                  | 37.8      | 33.2      | 0.884    | 37.4           | 33.1        | 0.744    |
| Looked up answers to questions in an online exam                                      | No                                  | 48.5      | 59.4      | 4.565*   | 50.5           | 58.0        | 2.149    |
| Number of reading hours for academic purposes per day during fall term 2020-2021      | 5 hours and above                   | 22.4      | 26.7      | 0.951    | 21.5           | 28.4        | 2.433    |
| Spent time with someone without masks in the last 24 hrs.                             | No                                  | 50.0      | 51.9      | 0.134    | 51.4           | 50.3        | 0.046    |
| Days for physical activity for health and fitness purposes per week in the last month | 3 days and above                    | 40.8      | 40.6      | 0.001    | 39.7           | 42.0        | 0.206    |
| Ever smoked cigarettes                                                                | No                                  | 39.8      | 32.6      | 2.131    | 37.9           | 34.3        | 0.509    |
| Ever drank alcoholic drinks                                                           | No                                  | 38.8      | 39.0      | 0.003    | 36.4           | 42.0        | 1.230    |
| Currently in a romantic relationship                                                  | No                                  | 25.6      | 39.2      | 5.51*    | 29.5           | 36.4        | 0.02     |
|                                                                                       | Female Yes                          | 61.5      | 53.8      | 0.702    | 58.7           | 57.4        | 1.35     |
|                                                                                       | Male                                |           |           |          |                |             |          |
| Total                                                                                 |                                     | 196       | 187       |          | 214            | 169         |          |

Note: Topic1 (focus during online classes) Topic 2 (social life of students during the distance education process of the COVID-19 pandemic). HUIP DSRM = Hacettepe University Institute of Population Studies Department of Social Research Methodology. \*p<0.05, \*\*p<0.01.

The study proposed that the tendency to SDR would be greater under the “focus during online classes” topic and under the “Hacettepe University Institute of Population Studies Department of Social Research Methodology” as a sponsor. However, the sample estimates indicate the opposite and the systematic tendency to SDR was relatively higher under the “social life of students during the distance education process of the COVID-19 pandemic” topic. For the sponsor, the result supported the hypothesis and the systematic tendency to SDR was higher under “HUIPS DSRM” compared to a Ph.D. thesis as the sponsor. Overall, Table 10 shows that systematic tendency to SDR slightly differs by topic and sponsor.

Table 10

Mean Reported Number of Socially Desirable Responses by Topic and Sponsor

| Topic                       |                                                                                        | Sponsor      |            |
|-----------------------------|----------------------------------------------------------------------------------------|--------------|------------|
| Focus during online classes | social life of students during the distance education process of the COVID-19 pandemic | Ph.D. thesis | HUIPS DSRM |
| 4.37                        | 4.60                                                                                   | 4.42         | 4.56       |

Note. HUIPS DSRM = Hacettepe University Institute of Population Studies Department of Social Research Methodology.

To see whether the bivariate relationships we observed hold under a multivariable setting to explain the systematic tendency to SDR, a Poisson regression model was run including topic, sponsor, the Marlowe-Crowne short-scale, introduction interest, and perceived topic sensitivity, controlling for sex, education level, the field of study, and age. Regarding the attention check item, three respondents failed to pay attention to the item instructions and they were excluded from the analysis.

The deviance for the fitted model is 348.91 and the intercept-only model deviance is 439.19 (Table 11). The pseudo  $R^2$  of the Poisson regression model is equal to 20.6%, implying that the model has almost reduced 21% of the deviance compared to the intercept-only model.

As shown in Table 9, at an item level, the tendency to SDR differs by topic in three items but Poisson model outputs show that neither the topic nor the sponsor coefficients are significant ( $p > 0.05$ ) (see Table 11). The Marlowe-Crowne SD short-scale is significant, and the model predicts that respondents who scored low on the M-C SD short-scale were less likely to demonstrate a systematic tendency to socially desirable responding compared to those who scored high on the scale. The rate of socially desirable responding for a respondent who scored 1 on the M-C SD short-scale was 0.59 times lower compared to a respondent who scored 7 on the M-C SDR short scale. The introduction interest variable was significant ( $p\text{-value} < 0.001$ ), and contrary to our expectations, the reported number of socially desirable answers decreased as the level of interest dropped. Respondents who found the survey not interesting at all (reluctant respondents) are 0.68 times less likely to provide desirable answers than respondents who found the survey “very interesting” those we defined as optimizers (see Table 11).

Table 11

Poisson Regression Model for the Number of Socially Desirable Responses across 14 Items

|                                                                                                  | B                    | Standard error | Wald Chi-square | p-value        | Exp(B)  |
|--------------------------------------------------------------------------------------------------|----------------------|----------------|-----------------|----------------|---------|
| Intercept                                                                                        | 2.71                 | 0.31           | 77.41           | 0.000          | 15.04   |
| <b>Topic</b>                                                                                     |                      |                |                 |                |         |
| Focus during online classes                                                                      | -0.05                | 0.05           | 1.10            | 0.294          | 0.95    |
| The social life of students during the distance education process of the COVID-19 pandemic (ref) |                      |                |                 |                | 1       |
| <b>Sponsor</b>                                                                                   |                      |                |                 |                |         |
| Ph.D. thesis                                                                                     | -0.05                | 0.05           | 1.10            | 0.294          | 0.95    |
| HUIPS DSRM (ref)                                                                                 |                      |                |                 |                | 1       |
| <b>M-C SD short-scale</b>                                                                        |                      |                |                 |                |         |
| 0                                                                                                | -0.53                | 0.33           | 3.39            | 0.066          | 0.55    |
| 1                                                                                                | -0.53                | 0.23           | 5.16            | 0.023          | 0.59*   |
| 2                                                                                                | -0.31                | 0.15           | 4.55            | 0.033          | 0.73*   |
| 3                                                                                                | -0.18                | 0.11           | 3.03            | 0.081          | 0.83    |
| 4                                                                                                | -0.17                | 0.09           | 3.39            | 0.066          | 0.84    |
| 5                                                                                                | -0.19                | 0.10           | 4.01            | 0.045          | 0.83*   |
| 6                                                                                                | -0.07                | 0.09           | 0.540           | 0.467          | 0.93    |
| 7 (ref)                                                                                          |                      |                |                 |                | 1       |
| <b>Introduction interest</b>                                                                     |                      |                |                 |                |         |
| Not interesting at all                                                                           | -0.39                | 0.11           | 13.38           | 0.000          | 0.68*** |
| Somewhat interesting                                                                             | -0.24                | 0.08           | 9.93            | 0.002          | 0.78**  |
| Interesting                                                                                      | -0.07                | 0.07           | 0.91            | 0.340          | 0.93    |
| Very interesting (ref)                                                                           |                      |                |                 |                | 1       |
| <b>Perceived topic sensitivity</b>                                                               |                      |                |                 |                |         |
| not sensitive at all                                                                             | -0.11                | 0.08           | 1.70            | 0.192          | 0.89    |
| Sensitive                                                                                        | -0.02                | 0.06           | 0.09            | 0.770          | 0.98    |
| very sensitive (ref)                                                                             |                      |                |                 |                | 1       |
| <b>Sex</b>                                                                                       |                      |                |                 |                |         |
| Prefer not to say                                                                                | -0.52                | 0.24           | 4.54            | 0.033          | 0.60*   |
| Male                                                                                             | -0.10                | 0.06           | 2.69            | 0.101          | 0.90    |
| Female (ref)                                                                                     |                      |                |                 |                | 1       |
| <b>Education</b>                                                                                 |                      |                |                 |                |         |
| Education (Undergraduate)                                                                        | -0.32                | 0.09           | 11.99           | 0.001          | 0.73*** |
| Master or Ph.D. (ref)                                                                            |                      |                |                 |                | 1       |
| <b>Field of study</b>                                                                            |                      |                |                 |                |         |
| Education sciences                                                                               | 0.04                 | 0.12           | 0.12            | 0.735          | 1.04    |
| Engineering sciences                                                                             | 0.00                 | 0.11           | 0.00            | 0.995          | 0.99    |
| Health sciences                                                                                  | -0.01                | 0.08           | 0.02            | 0.881          | 0.99    |
| Sport sciences                                                                                   | -0.17                | 0.07           | 5.18            | 0.023          | 0.84*   |
| Arts and other sciences                                                                          | -0.23                | 0.10           | 5.01            | 0.025          | 0.80*   |
| Social sciences (ref)                                                                            |                      |                |                 |                | 1       |
| <b>Age</b>                                                                                       | -0.02                | 0.01           | 3.03            | 0.082          | 0.98    |
| Pseudo R <sup>2</sup> 20.6%                                                                      | Intercept-only model |                | Deviance=439.19 | Value/df=1.251 |         |
|                                                                                                  | Predictor model      |                | Deviance=348.91 | Value/df=1.064 |         |

HUIP DSRM = Hacettepe University Institute of Population Studies Department of Social Research Methodology. SE = standard error. \*p&lt;0.05

\*\*p&lt;0.01\*\*\*p&lt;0.001.

According to the model, males were not significantly different than females in terms of the rate of reporting more socially desirable responses. Prefer not to say group does seem to be significantly different than the reference category, but it is worth underlining that this group consists of only 7 cases. The undergraduate students reported 0.73 times fewer socially desirable answers compared to master and Ph.D. students. Also, students from sports sciences reported 0.84 times fewer and arts and other sciences category 0.80 times fewer socially desirable answers compared to social sciences (Table 11).

## Conclusion

This study is among the few to focus on the effects of survey topic and sponsor on SDR in a self-administered setting. Overall, the study found no significant effects of the survey topic and sponsor on the tendency to SDR. However, intriguingly, it was seen that respondents who found the survey interesting demonstrated a higher disposition to systematic SDR. The study suggests that respondents who thought the survey topic was interesting might tend to a systematic SDR. Also, it was seen that sensitive topics might result in a systematic tendency to SDR, as respondents who perceived the survey topic to be very sensitive demonstrated a higher tendency to a systematic SDR.

The current results might support the notion that respondents do not give more attention to survey invitations that come from well-known sponsors to them (Tourangeau et al., 2009). This argument suggests that when respondents frequently receive survey requests from a specific sponsor, they might give less attention to some parts of the survey request. Also the result regarding topic and sponsor effects is concordant with the survey research on survey topic and sponsor which shows that topic and sponsor have little effect on response rates and survey estimates. The sponsor results are in agreement with previous studies (Boulianne et al., 2010; Crabtree et al., 2020; Etter et al., 1996) that reported null effects of sponsor on data quality. However, some other studies reported significant sponsor effects on response rate and data quality (Jones, 1979; Ladik et al., 2007; Tourangeau et al., 2009). For the survey topic, Keusch (2013) reported null effects of survey topic salience on survey participation and data quality in an online panel experiment.

There could be a variety of reasons for the null effects of the survey topic and the sponsor in the present study. Respondents might not have read the survey introduction well and may have started directly filling out the questionnaire. Besides, when the survey topic and sponsor are revealed inside the survey introduction, they might not appear salient enough. Alternatively, the topic and the sponsor effects on SDR may be dependent upon the degree of topic sensitivity and the sponsor-respondent relation. For instance, sponsor effects on SDR could be more salient if the respondents receive the survey link from two sponsors that greatly differ. In the current study, all respondents received the survey link from Hacettepe University and some from their instructors, so that the differences between the two different sponsors may not have been emphasized enough. In sum, survey topic and sponsor might not affect SDR, and even if they do, the effect might be small.

Also, the results indicate that some respondents are more likely to respond in a socially desirable manner than others as the Poisson regression model indicated. For example, SDR differs by respondents' background characteristics and is positively correlated with age in the literature (Soubelet and Salthouse, 2011; Stöber, 2001; Vigil-Colet et al., 2013). In the present findings, age was not found significant, and this might be related to the

fact that the age range of the respondents in this study was relatively homogeneous, with most respondents being in their early 20s. Similarly, there have been studies showing that educated people usually demonstrate more tendency to SDR (Deshields et al., 1995; Karp and Brockington, 2005) In the current results, postgraduate respondents reported more desirable response categories compared to undergraduate respondents.

Finally, the present investigation has some limitations that need to be addressed. Firstly, the data were collected from a convenience sample of undergraduate and postgraduate students. The use of such samples is common in experimental research and the results cannot be generalized beyond the sample. The levels of experimental factors were not very distinct enough, and we believe that this could be a reason why we have not observed a significant effect. This was evident by the explicit question to respondents asking them to rate their sensitivity, where we observed similar degrees of perceived sensitivity. Also, introducing the survey topic and the sponsor inside the introductory statement may not make them appear salient enough.

For future research, the levels of experimental factors should be discernible. It would be very useful to investigate how a systematic tendency to SDR may vary between two sponsors that greatly differ. Likewise, when introducing the survey topic and sponsor inside the introductory statement, the survey topic and the sponsor should stand out from the rest of the writing. For example, the font size of the topic and the sponsor could be bigger or in bold. For sponsor, using sponsor logo may make it more salient. Finally, it would be interesting to examine a systematic tendency to SDR in situations where incentives are provided and not provided both in self-administered and personal interviews.

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## Genişletilmiş Özet

### Amaç

Bu çalışmanın üç ana amacı bulunmaktadır. Bunlar bir dizi anket sorusunda sosyal istenirlik etkileri gösteren yanıtlara yönelik olası sistematik bir eğilimin anket konusu ve anketi destekleyen kuruluş, anket tanıtımına duyulan ilgi ve konunun ne kadar hassas algılandığına göre farklılık gösterip göstermediğidir. Sosyal istenirlik yanlılığı farklı şekillerde tanımlanmaktadır. Örneğin sosyal olarak onaylanma isteği (Crowne and Marlowe, 1960), yapmacık iyilik hali (Furnham, 1986), kişinin kendisini iyi göstermek istemesi (Hays et al., 1989), veya kişinin kendisini abartılı şekilde olumlu tanımlaması gibi (Paulhus, 2002). Bu çalışmada sosyal istenirliğe yönelik sistematik eğilim Paulhus'un (1991, s. 17) tanımına uygun olarak kavramsallaştırılmaktadır: “Yanıt yanlılığı, bir dizi anket ögesine (sorularına) bu ögelerin içeriğinden başka bir temelde yanıt vermeye yönelik sistematik bir eğilimdir”. ‘Sistematik eğilim’ terminolojisi bu makale boyunca 14 maddelik bir dizi öge arasında tekrarlayan biçimde sosyal olarak istenen yanıtların seçilmesini ima edecek şekilde kullanılmıştır. Bu yanıtların sayısı teorik olarak 0 ve 14 arasında değişmektedir.

### Tasarım ve Yöntem

Bu çalışma, 2x2x2 deneysel tasarımı olan bir çevrimiçi anketin verilerinden yararlanmaktadır. Deneysel faktörler, anketin konusu, destekleyen kuruluş ve sosyal olarak istenen yanıtın seçenekler arasındaki konumudur. Bu çalışma, ilk iki deneysel faktörle ilgilidir. Anket konusunun ve destekleyen kuruluşun sosyal istenirliğe sistematik eğilim üzerindeki etkisini ampirik olarak test etmek için Google Formlar kullanılarak bir anketin sekiz farklı versiyonu hazırlanmıştır. Deneysel konular “çevrimiçi derslerde odaklanma” ve “COVID-19 pandemisi uzaktan eğitim sürecinde öğrencilerin sosyal hayatı” olurken, deneysel destekleyici kuruluşlar “Doktora tezi” ve “Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırmalar Metodolojisi Anabilim Dalı” olarak belirlenmiştir. Minitab 17 kullanılarak 0.90'lık bir güç ve 0.05'lik bir anlamlılık düzeyi ile 0.2'lik bir etki büyüklüğünü tespit etmek için 272'lik yeterli bir örneklem büyüklüğü hesaplanmıştır.

Katılımcıları 8 deneysel versiyona rastgele atamak için kendilerine ilk soru olarak ayın hangi gününde doğdukları sorulmuştur. Katılımcılar sekiz gün aralığından (1-4, 5-8, 9-12, 13-15, 16-19, 20-23, 24-27 ve 28-31) uygun olanı seçtikten sonra ilgili anket versiyonuna atanmışlardır.

### Bağımlı değişken

Operasyonel olarak, sosyal istenirliğe sistematik eğilim, sosyal olarak teşvik edilen faaliyetleri olağandan fazla bildirme, sosyal olarak iyi bakılmayanları ise eksik bildirme veya reddetme eğilimi olarak tanımlanmıştır. Bu tanım, yaygın olarak kullanılan Marlowe-Crowne sosyal istenirlik ölçeği “Kişilerin kültürel olarak uygun ve kabul edilebilir bir şekilde yanıt vererek onay alma ihtiyacı” (Crowne and Marlowe, 1960, s.353) tanımı ile uyumludur.

Toplam 14 sorunun her birinin yanıt kategorileri ikili olarak kodlanmıştır (sosyal istenirliği olan ve olmayan yanıtlar). Sosyal olarak istenen yanıtın yönünü belirlemek için, ilk olarak, soru sosyal olarak teşvik edilen bir faaliyet ile ilgiliyse abartılı olabilecek yanıt kategorisi sosyal olarak istenen kategori olarak tanımlanmıştır. Benzer şekilde, soru sosyal iyi bakılmayan bir faaliyet ile ilgili ise, eksik bildirim veya inkarı işaret edebilecek yanıt kategorisi, sosyal olarak istenen yanıt seçeneği olarak kabul edilmiştir. Ayrıca, yanıtlayıcıların bakış açısından yanıt kategorilerinin istenirliği hakkında daha iyi fikir edinmek için, Hacettepe Üniversitesi Nüfus



Etütleri Enstitüsü Sosyal Araştırmalar Metodolojisi Bölümü'nden bir grup öğrenciden yanıt kategorilerinin tercih edilebilirliğini derecelendirmeleri istenmiştir.

Bu kodlama işlemi sonucunda her katılımcı için 14 üzerinden bir toplam puan hesaplanmıştır ve ortalamanın üzerinde toplam puanın sistematik sosyal istenirlik eğilim gösteriyor olabileceği düşünülmüştür. Bununla birlikte, yüksek sayıda sosyal istenirliğe uygun yanıtın, sosyal istenirliğe sistematik bir eğilimden ziyade gerçek yanıtları da yansıtır olabileceği de dikkate alınmıştır. Bu iki açıklama arasında bir nebze ayırım yapmak için, ankete Marlowe-Crowne sosyal istenirlik ölçeğinin Türkçe kısa versiyonu (7 maddelik) eklenmiştir. Marlowe-Crowne sosyal istenirlik ölçeğinin Türkçe kısa versiyonu Ural ve Özbirecikli (2006) tarafından çevrilmiş ve test edilmiştir, Cronbach alfa değeri 0.78'dir. 7 ögenin tümü 'doğru' yanıtları 1 puan alacak şekilde kodlanmış, her katılımcı için toplam puan hesaplanmıştır. Hem Marlowe-Crowne sosyal istenirlik kısa ölçeğinin ortalama puanının üzerinde puan alan hem de 14 soru aralığında sosyal olarak arzu edilen yanıtları ortalama puanın üzerinde veren katılımcılar, sistematik şekilde sosyal istenirliğe eğilimli yanıt veren katılımcılar olarak tanımlanmıştır.

#### *Bağımsız değişkenler*

"Öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları" ile karşılaştırıldığında, "çevrimiçi derslerde odaklanma"nın daha hassas bir konu olduğu ve sistematik sosyal istenirlik eğilimini daha çok ürettiğini varsayılmıştır. Anket içeriklerinin aynı olması nedeniyle her iki konunun da pandemi ve eğitim çağrıştırmasına dikkat edilmiştir. Bu iki konu pandemi sırasında hedef kitlenin ilgisini çekebilecek ve aynı zamanda bir nebze hassas olacak şekilde seçilmiştir.

Öte yandan, Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırma Yöntemleri Anabilim Dalı'ndan ankette bölüm adının deneysel faktör düzeylerinden biri olarak kullanılması için onay alınmıştır. Üniversite ile anket hedef kitlesi arasındaki ilişki göz önüne alındığında, "Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü Sosyal Araştırmalar Metodolojisi Anabilim Dalı"nın katılımcılar ile görece dikey bir ilişkiyi, "Doktora tezi"nin ise görece yatay bir ilişkiyi düşündürmesi, bu durumun Enstitü isminin daha fazla sosyal istenirlik eğilimine yol açması beklenmiştir.

Anketin tanıtım yazısından sonra ankete dair oluşan olan ilgiyi ölçmek için katılımcılara "Giriş bölümünü okuduktan sonra anket hakkındaki izleniminiz nasıldı?" diye sorulmuştur ("hiç ilginç değil", "biraz ilginç", "ilginç" ve "çok ilginç" yanıt seçenekleri ile). Ayrıca, konunun ne kadar hassas olarak algılandığını ölçen bir soru da ankete dahil edilmiştir. Katılımcılara önce anket konusu hatırlatılmıştır, ardından da bu konuyu ne kadar hassas buldukları sorulmuştur, örneğin: "Hatırlayacağınız gibi, bu anket öğrencilerin uzaktan eğitim sürecindeki sosyal yaşamlarıyla ilgiliydi, aşağıdaki hangi ifade bunu en iyi tanımlamaktadır?" ("hiç hassas değil", "hassas" ve "çok hassas" seçenekleri ile). Son olarak, yorgunluğu ve dikkatsiz yanıtlamayı kontrol etmek için anket görece kısa tutulmuştur. Toplamda sadece 34 soru sorulmuştur. Bir yanıtlama davranışı olan ardısıra aynı yanıt seçeneklerini seçme durumunun varlığını kontrol etmek için araya bir dikkat kontrol sorusu gizlenmiştir. Ayrıca, katılımcılardan ankete ne kadar zaman ayırdıklarını "beklediğimden daha az zaman", "makul süre" ve "çok zaman" seçenekleri ile değerlendirilmeleri istenmiştir.

### *Veri toplama*

Çevrimiçi anket ve deney tasarımı Hacettepe Üniversitesi etik komisyonu tarafından onaylanmıştır ve her anket versiyonun ilk sayfasında onam formu sunulmuştur. 5 Mayıs 2021 tarihinde Hacettepe Üniversitesi Basın ve Halkla İlişkiler Ofisi tarafından Hacettepe Üniversitesi öğrencilerine (lisans, yüksek lisans ve doktora) anket linki gönderilmiştir. 62.788 kişiden 32'si ilk temasta anketi yanıtlamıştır ve hatırlatma gönderildikten sonra ise 15 kişi daha eklenmiştir. Yanıt sayısını artırmak için Hacettepe Üniversitesi akademik personeli olan bazı öğretim elemanları ile iletişime geçilmiş ve derslerini alan öğrencilerle anket bağlantısını paylaşmaları rica edilmiştir. Bir buçuk ay içinde bu şekilde ulaşılan kabaca 1336 öğrenciden 340'ı ankete katılmıştır. Nihai örneklem büyüklüğü 387'dir.

### **Bulgular**

#### *Temel özellikler*

Toplamda 386 katılımcı çevrimiçi anketi tamamlamıştır. Tablo 1'de gösterildiği gibi, örneklem ağırlıklı olarak (%67) kadınlardan oluşmaktadır. Ankete katılanların yaş ortalaması 22'dir ve %83'ü lisans, %7'si yüksek lisans ve %2'si doktora öğrencisidir. Ankete katılanlar ağırlıklı olarak sağlık ve sosyal bilimler alanlarında çalışmalarını sürdürmektedirler.

#### **Ana Bulgular**

##### *Anket tanıtımına duyulan ilgi*

İlgi sorusunun dört farklı yanıt kategorisini seçen katılımcıların verdiği ortalama sosyal istenirlik gösteren yanıt sayısı tek yönlü ANOVA testi ile karşılaştırılmış, buna göre farklar istatistiksel olarak anlamlı bulunmuştur ( $F=15.169, p<0.001$ ). İkili testlere göre (Tablo 6), beklenenin aksine, anketi çok ilginç bulan katılımcılar, daha fazla sayıda sosyal açıdan istenen yanıt verme eğilimindedir. Bu katılımcılar ayrıca Marlowe-Crowne kısa ölçeğinde de daha yüksek puan almıştır (Şekil 3).

##### *Konunun ne kadar hassas algılandığı*

Katılımcılar “öğrencilerin uzaktan eğitim sürecinde sosyal yaşamları” konusunu ortalamada biraz daha hassas olarak algılamışlardır (Tablo 7). Konu hassasiyetine verilen yanıtlar bazında ortalama sosyal istenirlik etkisi gösteren yanıt sayısı tek yönlü ANOVA testi ile değerlendirildiğinde anlamlılık sınırında bir farklılık görülmüştür ( $p\text{-değeri}=0.052$ ) (Tablo 8).

##### *Konu ve destekleyici kurum etkileri*

Konu ve destekleyici kurumun bağımlı değişken üzerindeki etkileri Poisson regresyon ile incelenmiştir. Buna göre bu iki deneysel faktörden hiçbirisi istatistiksel olarak anlamlı bulunmamıştır ( $p>0.05$ ) (Tablo 11). Bu çalışmada bu iki faktörün sosyal istenirlik gösteren yanıtlara sistematik bir eğilime yol açacağına dair bir kanıt bulunmamıştır. Aynı regresyon modelinde kontrol edilen diğer değişkenlerden ise Marlowe-Crowne kısa ölçeği, anketin tanıtımına duyulan ilgi, lisans öğrencisi olup olmama ve çalışılan alan anlamlı bulunmuştur.

### **Sonuçlar ve Sınırlılıklar**

Bu çalışma, kendi kendine doldurulan bir ankette anket konusunun ve destekleyen kuruluşun sosyal istenirliğe uygun yanıt verme eğiliminin üzerindeki etkilerine odaklanan az sayıdaki çalışma arasındadır. Genel olarak, çalışma, anket konusunun ve destekleyici kuruluşun sosyal istenirliğe uygun yanıt verme eğilimi üzerinde

anlamalı bir etkisi bulunamamıştır. Bununla birlikte, ilginç bir şekilde, anketi ilginç bulan katılımcıların sistematik sosyal istenirliği olan yanıtlara daha yüksek bir eğilim gösterdiği görülmüştür. Çalışma anket konusunu ilginç olarak değerlendiren katılımcıların sistematik olarak sosyal istenirliğe uygun yanıt vermeye eğilimli olabileceğini göstermiştir. Ayrıca, anket konusunu çok hassas olarak algılayan katılımcılar sistematik olarak bu tip yanıtlara daha fazla eğilim gösterdiğinden, hassas anket konularının genel olarak sistematik şekilde sosyal istenirliği olan yanıtlara yol açabileceği görülmüştür. Çalışmanın kısıtlılıklarından biri bir elverişlilik/uygunluk örnekleme dayanması, sonuçların örneklem dışına genellenebilmesinin mümkün olmamasıdır. Bir başka kısıtlılık deneysel faktörlerin düzeylerine ilişkindir. Bu düzeylerdeki farklılıklar yeterli olmamış, bu da olası konu ve destekleyen kurum etkilerinin gözlemlenebilmesini engellemiş olabilir. Katılımcılara konuların hassasiyetinin sorulduğu soruya her iki konu için de benzer yanıtlar gelmesi bu şüpheyi güçlendirmektedir. Gelecekte sistematik şekilde sosyal istenirlik yanıt verme eğiliminin birbirinden büyük ölçüde farklı olan destekleyici kurumlar arasında nasıl değişebileceğini araştırmak yararlı olacaktır. Görsel olarak da, çevrimiçi anketlerde anket konusu ve destekleyen kuruluş öne çıkarılabilir.

**Araştırmacı Katkısı:** Abdirahman Saeed MOHAMED (%65), Tuğba Adalı (%35).



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Bilgisayar İşletmeni

Telefon: 03123051008

