

Foresight



BY AARP & NORC

PROJECT GAMERS 40+ 2022 AARP

FORESIGHT 50+ PROJECT METHODS AND
TRANSPARENCY REPORT

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STUDY INTRODUCTION

NORC conducted the Gamers 40+ study on behalf of AARP using NORC's *Foresight 50+®* Panel (Supplemented by the AmeriSpeak® Panel for the portion of the sample that is 40-49 years old) *Foresight 50+®* Panel), as well as Lucid's and Prodege's panels. The former is a probability-based panel, and the latter are non-probability panels. This research was sponsored by AARP and managed by Magid in collaboration with NORC to further understand mobile/video game behaviors among American adults over 40 years old.

AARP conducts the Gamers study every 3 years, with the third wave data collected in 2022. AARP wanted to track changes, if any, in attitudes and behaviors among Gamers 40 years old and above. Similar to previous waves, there were also questions asked of non-gamers.

The survey was offered in English and Spanish. It was administered in two modes for the Foresight 50+ Panel respondents depending on the preference that the respondent provided during the panel recruitment: 1) self-administered by the respondent online via the Web; or 2) administered over the telephone by a live interviewer. For non-probability respondents, all completed interviews were self-administered by the respondent online. Final data was weighted using NORC's *TrueNorth* Calibration methodology.



AAPOR Transparency Initiative

This Foresight 50+ *Project Methods and Transparency Report* provides complete information on how the survey was executed, including any information disclosure to meet the requirement of the AAPOR Transparency Initiative. NORC at the University of Chicago is a Charter Member of the AAPOR Transparency Initiative, which fosters open science of survey research by acknowledging those organizations that pledge to practice transparency in their reporting of survey-based research findings. More on the Transparency Initiative can be found here: <https://www.aapor.org/Standards-Ethics/Transparency-Initiative/FAQs.aspx>

SCREENER OVERVIEW

This section pertains to the full sample of Foresight 50+ respondents (supplemented by AmeriSpeak panel for panelists age 40-49) who answered the initial screener question in the AARP Gamers 40+ Survey. These panelists were screened on Q5, ownership of specific gaming devices which determined whether the respondent was eligible for the main survey.

Sample Source: Foresight 50+ (with supplemental sample from AmeriSpeak panel for the respondents aged 40-49) probability sample only

Sample Units: 33,080

Screener Completed Units: 8,053 (7,935 by web and 118 by phone)

Eligible Units: 8,046 (7,874 by web, 122 by phone)

Definitions of the above categories:

Sample Source: Foresight 50+ panel, supplemented by AmeriSpeak panelists aged 40-49

Sample Units: The number of panel members selected into the study sample.

Screener Completed Units: The number of sample units that completed the screener based on the study-specific definition of what constitutes a screener complete, in this case had a valid response for any device at Q5. This number excludes any cases where a respondent finished a survey, but the case was removed due to data quality concerns.

Eligible Units: The number of sample units that were deemed eligible based on the study-specific definition of what constitutes eligibility, in this case indicated they owned at least one of the devices listed in Q5. This number excludes any cases where a respondent finished a survey, but the case was removed due to data quality concerns.

SURVEY OVERVIEW

Study Target Population: The survey had two parts, with 8 survey questions having a target population of General Population Age 40+, 1 question asked of non-gamers, and the remainder of the survey had a target population of 40+ who play games via digital devices (mobile, PC, console, etc.) at least once a month. We refer to the latter as Gamers for the rest of this document.

Gamers comprise 49% of the general population of those age 40+ who have a gaming device.

Sample Units (Probability cases only): 33,080

Overall Completed Units: 7,795 (4,433 gamers and 3,362 non-gamers)

Probability Completed Units: 6,778 (3,416 gamers and 3,362 non-gamers)

Nonprobability Completed Units: 1,017 gamers (There were no non-gamers from the Non-Probability sample)

Observed Eligibility Rate: 100% of 40+ general population sample were eligible to go through 8 questions in the survey and 48.9% of 40+ Gamer sample were eligible to go through the main survey targeted at gamers. One question was asked specifically of non-gamers.

Survey Field Period: June 23 – July 13, 2022

Median Duration (minutes): 32 minutes for Gamers and 7 minutes for Non-Gamers

Definitions of the above categories:

Study Target Population: The total set of individuals of interest to which the researcher intends to generalize their conclusions.

Sample Units: The number of panel members selected into the study sample.

Completed Units: The number of sample units that completed the interview based on the study-specific definition of what constitutes a complete interview. This number excludes any cases where an interviewer finished a survey, but the case was removed due to data quality concerns (the process for such removal is detailed later in this report).

Expected Eligibility Rate: The percentage of the sampling population who are expected to meet study eligibility criteria.

Observed Eligibility Rate: The percentage of the sample members who were eligible for the study among those who answered the screening questions.

Survey Field Length: the period from the earliest to the latest contact dates of cases sampled for the survey.

Duration: Length of time for completed interviews. Interview length is calculated differently depending upon whether the interview was conducted over the phone or via the web. For telephone mode, it is the time from when the respondent picks up the telephone until they hang up the telephone. For web interviews, it is the time from when they first connect to the web system to the time they log off the system or become inactive. In the case of multiple contacts, this number represents the sum of those contacts.

STUDY-SPECIFIC DETAILS

Sampling

A general population sample of US adults age 40+ was selected for this study from NORC's probability based Foresight 50+ Panel (supplemented by the AmeriSpeak panel for the portion of the sample aged 40-49) and from Lucid's and Prodege's non-probability panels. In the initial design of the study, oversamples were set for Black/NH, Hispanic, AAPI, 50-59, and 60-69. The required sample sizes for 50-59 and 60-69 were achieved through NORC's probability-based sample. Oversamples were collected to achieve efficient sample size for analysis of these groups. In order to help achieve the oversample size for Black/NH, Hispanic, and AAPI, a sample of respondents from Lucid and Prodege non-probability panels were also included.

The overall study target population of 40+ was asked of 8 questions. Gamers were asked of the main survey, while non-gamers were also asked of 1 question specifically among that population.

The probability sample for this specific study is selected from the Foresight 50+ Panel (supplemented by the AmeriSpeak panel for the age 40-49 portion of the sample) using sampling strata based on age, race/Hispanic ethnicity, education, and gender (36 sampling strata in total). Sample selection takes into account the expected differential survey completion rates across the sampling strata. The size of the selected sample per stratum is determined such that the distribution of the complete surveys across the strata matches that of the target population as represented by census data. If a panel household has more than one active adult panel member, only one adult panel member is selected at random. When panelists are selected for a AmeriSpeak survey, the selection process, within each sampling strata, favors those who were not selected in the most recent previous AmeriSpeak survey. This selection process is designed to minimize the number of surveys any one panelist is exposed to and maximize the rotation of all panelists across AmeriSpeak surveys.

The Foresight 50+ Panel, a subset of the AmeriSpeak Panel, is the nation's largest high-quality research panel of Americans aged 50 and older, created by the joined forces of AARP and NORC at the University of Chicago. For more detailed information on the Foresight 50+ panel recruitment and management methodology, please see the Appendix ("Technical Overview of the Foresight 50+® Panel Probability-Based Household Panel") attached to this Foresight 50+ Project Methods and Transparency Report.

The AmeriSpeak Panel used for the age 40-49 portion of the sample is NORC's probability-based panel that covers an 18+ years of age population and is built in a very similar fashion as described in the Technical Overview Report in the Appendix section of this report.

For the non-probability sample, we defined quota targets for demographic strata to reflect known population distributions and worked with the sample providers to slowly release sample over the field period to adequately fill each. The quota targets and the number of interviews in each are given later in the field section of this report.

The oversamples for 40+ gamers in this project have the following sample sizes:

	Completed Sample Units	Completed Probability Sample Units (n)	Completed Non-probability Sample Units (n)
Black/Non-Hispanics	673	296	377
Hispanics	564	329	235
AAPI	445	124	321

Field

For the main survey, a sub-sample of Foresight 50+ web-mode panelists (supplemented by AmeriSpeak for the 40-49 age group) were invited to the survey on June 23, 2022 in a soft launch. The initial data from the soft launch was reviewed to confirm that there were no processing or programming errors. Once reviewed, the remainder of sampled AmeriSpeak panelists were invited to the survey on June 29, 2022. Data collection ended on July 13, 2022.

Sample from Lucid and Protégé were also fielded on June 23 to July 13, 2022.

A recontact was conducted among 2,616 survey completes who were AmeriSpeak panelists and were skipped out of Q62A due to a survey logic error. A total of 2,350 NORC panelists responded to the recontact. The recontact was fielded from July 20 – July 28, 2022.

In total, NORC collected 6,778 (3,416 gamers and 3,362 non-gamers) of final Foresight 50+ (with supplemental sample from AmeriSpeak) interviews, 6,669 (3,399 gamers and 3,270 non-gamers) by web mode and 109 (17 gamers and 92 non-gamers) by phone mode. An additional 1,017 survey completes were collected through Lucid and Protégé, all these interviews were collected by web mode. The non-probability survey completes were only for the 40+ gamer sample. This does not include interviews that may have been removed for data quality purposes (see below).

This final collection of survey completers includes specific oversamples noted above to ensure adequate sample size of those groups for analysis. For the 40+ general population weight, these oversampled groups are weighted down to match their respective proportion in the population in the weighting process (see description of that process later in this report).

The final sample also includes 104 Spanish Speakers (set quota of 71 gamers and 33 non-gamers).

Minimum quotas were set for the AmeriSpeak and nonprobability sample, broken out in the following ways:

**Distribution of Completed Interviews of the 40+ GENERAL POPULATION
Sample in Delivered Analysis File
by Sample Source and Race/Ethnicity (Unweighted)**

Demographic	Lucid and Protégé Sample Source		NORC Foresight 50+/BYP Source		Total	
	N Interviews	Row %	N Interviews	Row %	N Interviews	Row %
Hispanic	235	29.2%	569	70.8%	804	100%
White, Non-Hispanic (incl. multi-White)	41	0.8%	5,158	99.2%	5,199	100%
African Americans, Non-Hispanic (incl. multi-Black)	377	39.2%	584	60.8%	961	100%
Asian Americans, Non-Hispanic (incl. multi-Asian, Asian-Black)	321	55.4.0%	258	44.6%	579	100%
Other, Non-Hispanic	43	17.0%	209	83.0%	252	100%
Total	1,017	13.0%	6,778	87.0%	7,795	100%

**Distribution of Completed Interviews of the 40+ GAMER Sample in
Delivered Analysis File
by Sample Source and Race/Ethnicity (Unweighted)**

Demographic	Lucid and Protégé Sample Source		NORC Foresight 50+/BYP Source		Total	
	N Interviews	Row %	N Interviews	Row %	N Interviews	Row %
Hispanic	235	41.7%	329	58.3%	564	100%
White, Non-Hispanic (incl. multi-White)	41	1.6%	2,553	98.4%	2,594	100%
African Americans, Non-Hispanic (incl. multi-Black)	377	56.0%	296	44.0%	673	100%
Asian Americans, Non-Hispanic (incl. multi-Asian, Asian-Black)	321	72.1%	124	27.9%	445	100%
Other, Non-Hispanic	43	27.4%	114	72.6%	157	100%
Total	1,017	22.9%	3,416	77.1%	4,433	100%

**Nested Quota Cells and Number of 40+ GAMER Completes for
Nonprobability Sample by Race/Ethnicity, Age, Education, and Gender
(Unweighted)**

Ethnicity	Age	Education	Gender	# of Completes
Hispanic	40-49 yrs	Some college or less	Male	25
			Female	53
		Bachelors or Above	Male	19
			Female	24
	50-59 yrs	Some college or less	Male	13
			Female	37
		Bachelors or Above	Male	8
			Female	10
	60-69 yrs	Some college or less	Male	11
			Female	14
		Bachelors or Above	Male	11
			Female	8
	70+ yrs	Some college or less	Male	1
			Female	2
		Bachelors or Above	Male	1
			Female	2
Non Hispanic African American	40-49 yrs	Some college or less	Male	47
			Female	69
		Bachelors or Above	Male	23
			Female	23
	50-59 yrs	Some college or less	Male	28
			Female	51
		Bachelors or Above	Male	4
			Female	23
	60-69 yrs	Some college or less	Male	18
			Female	44
		Bachelors or Above	Male	5
			Female	11
	70+ yrs	Some college or less	Male	3
			Female	13
		Bachelors or Above	Male	7
			Female	8

**Nested Quota Cells and Number of 40+ GAMER Completes for
Nonprobability Sample by Race/Ethnicity, Age, Education, and Gender
(Unweighted) – CONTINUED**

Ethnicity	Age	Education	Gender	# of Completes
Non Hispanic AAPI	40-49 yrs	Some college or less	Male	21
			Female	17
		Bachelors or Above	Male	54
			Female	42
	50-59 yrs	Some college or less	Male	7
			Female	17
		Bachelors or Above	Male	38
			Female	40
	60-69 yrs	Some college or less	Male	5
			Female	12
		Bachelors or Above	Male	27
			Female	14
	70+ yrs	Some college or less	Male	2
			Female	2
		Bachelors or Above	Male	13
			Female	10
Total			937	

Panel & Survey Sample Performance

This section ***only*** applies to Foresight 50+ (with supplemental sample from AmeriSpeak panel for the respondents aged 40-49). It is not possible to measure sample performance rates for nonprobability sample, since we do not know how many were invited to the survey or any information about how the panel was built. It is also not relevant, since there is no advantage of a high response rate when the panel nor the sample is not based on probability.

To meet requirements in the AAPOR Transparency Initiative, we offer performance outcome measures of both the Foresight 50+ Panel and the Foresight 50+ sample selected from the Foresight 50+ Panel (supplemented by the AmeriSpeak panel for the respondents aged 40-49). The Foresight 50+ Panel is a household panel, so recruitment and retention rates are household rates. The survey sample is an individual-level sample pulled from the Foresight 50+ panel, so those are individual-level rates.

Panel Outcome Measures	
Weighted Household Panel Recruitment Rate (WPRcr)	Weighted Household Panel Retention Rate (WPRet)
19.5%	77.0%

Weighted Household Recruitment Rate (WPRcr): The weighted AAPOR RR3¹ at the household level for Foresight 50+ panel recruitment. A recruited household is a household where at least one adult successfully completed the recruitment survey and joined the panel.

Weighted Household Retention Rate (WPRet): The weighted percent of recruited households that remain on the panel and are available for sampling for this survey. Unavailable panelists are those who have temporarily or permanently asked to be removed from the panel or from receiving surveys.

Screener Sample Outcome Measures

Screener Completion Rate (ScrC): 24.3%

Definition of the above category:

Screener Completion Rate (ScrC): The percent of sampled panelists invited to the survey who completed the screener question(s) to identify whether they are eligible for the survey, whether or not they screened out of or into the survey. 33,080 panelists were invited to the survey, and 8,053 completed the screener questions to determine eligibility for the survey.

¹AAPOR RR3 and other response rate calculations can be found here: <https://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx>.

40+ GENERAL POPULATION (AmeriSpeak Probability Sample)

Survey Sample Outcome Measures				
Screener Completion Rate (ScrC)	Eligibility Rate (I)	Interview Completion Rate (IC)	Survey Completion Rate (SurC)	Weighted Cumulative Response Rate (WCR)
24.3%	100.0%	84.2%	20.5%	3.1%

40+ GAMER POPULATION (AmeriSpeak Probability Sample)

Survey Sample Outcome Measures				
Screener Completion Rate (ScrC)	Incidence/ Eligibility Rate for 40+ Gamers (I)	Interview Completion Rate (IC)	Survey Completion Rate (SurC)	Weighted Cumulative Response Rate (WCR)
24.3%	48.9%	86.9%	21.1%	3.2%

Screener Completion Rate (ScrC): The percent of eligible sample members invited to the survey who completed the screener question(s) to identify whether they are eligible for the survey, whether or not they screened out of or into the survey. 33,080 panelists were invited to the survey, and 8,053 completed the screener questions to determine eligibility for the survey.

Incidence/Eligibility Rate (I): The percent of those who completed the screener questions(s) who, based on their responses to the screener question(s), is determined to be eligible to take the survey. Of the 8,053 invited panelists who completed the screener questions to determine eligibility for the survey:

- 3,934 were classified as gamers, with 3,418 completing the main gamer survey and the 8 questions asked of the 40+ general population.
- 4,119 were non-gamers, with 2,630 asked 1 non-gamer question in addition to the 8 questions asked of the 40+ general population. The rest of the non-gamers were screened out after reaching the maximum of 2,630.

Interview Completion Rate (IC): The percent of eligible sample members who completed the survey interview. Of the 8,053 invited panelists who were determined to be eligible for the survey, 6,778 completed the survey. To be an interview completer, a respondent had to go through the entire survey (for Gamers) or were asked the 8 follow-up non-gamer questions and meet the standards of data quality review, as discussed later in this report

Survey Completion Rate (SurC): The overall completion rate at the survey stage of those invited, taking into consideration that not all invited were eligible. To achieve this, this includes the screener completion rate and the interview completion rate ($SurC = ScrC \times IC$)

Weighted Cumulative Response Rate (WCR): The overall survey response rate that accounts for survey outcomes in all response stages (e.g., screener completion rate and interview completion rate), *plus* it includes panel outcome measures such as panel recruitment rate and panel retention rate. This overall rate is weighted to account for the sample design and differential inclusion probabilities of sample members. ($WCR = SurC \times WPRet \times WPRecr$)

Gaining Cooperation of Foresight 50+ Panelists for the Study

If invited, Foresight 50+ panelists can take the survey online through the password-protected mobile app, the password-protected Web portal, or by following a link in the e-mail invitation sent to them.

To encourage study cooperation, NORC sent the initial invitation and email reminders to the sampled web-mode panelists on the following dates:

- June 23, 2022
- June 29
- July 1
- July 2
- July 3
- July 6
- July 7
- July 9
- July 11

To administer the phone survey, NORC dialed sampled panelists who prefer to take surveys on the phone from June 29 to July 13, 2022. Although most panelists who have stated a preference to take the survey on the phone do take them in that mode, they also have the option of taking the survey online via the web portal or the mobile app or can ask the interviewer to e-mail them an invite instead. These rare phone-preferred panelists who end up taking the survey online are coded in the data based on the mode they took the survey, not their previously stated mode preference.

Panelists were offered the cash equivalent of 3,000 AmeriSpeak points for completing this survey.

The rest of the non-gamers who were eligible to go through the 8 follow-up questions, before we capped it to 2,630 received an incentive of 1,000 AmeriSpeak points or equivalent to \$1.

The incentive provided to nonprobability sample is unknown to us. The method for getting completes does not necessarily involve reminders. Since probability is not involved, a higher response rate is not relevant for non-probability sample.

Data Processing & Data Quality Review

NORC prepared a fully labeled data file of respondent survey data and demographic data for Magid.

NORC applied cleaning rules to the survey data for quality control. In total, 157 cases were removed from the final set of completed interviews based on three cleaning rules. Descriptions of the cleaning criteria and the counts from each are below (counts are overlapping).

- Removing Speeders (i.e., those that completed the survey in less than one-third the median duration)
 - 49 removed for speeding
- Removing Respondents with High Refusal Rates (i.e., those that skip or refused more than 50% of the eligible questions)
 - 58 removed for high refusal rates
- Removing Respondents with Suspicious Open-End Data (i.e., those that had open end responses that contained gibberish or seemed unrelated to the question)
 - 64 removed for open end data
- Removing respondents who Switched Classification (i.e., those that went backwards in the survey to change from gamers to non-gamers, but were asked gamers questions)
 - 2 removed for switchers

Of those 157 cases removed:

- 87 cases were marked with one of the four flags above
- 10 cases were marked with two of the four flags above
- 58 cases were marked with three of the four flags above
- 2 cases were marked with all four flags above

Foresight 50+ (supplemented by the AmeriSpeak panel for respondents aged 40-49) is a probability-based panel, where respondents must be chosen by us to join, where access to surveys is controlled by the panelist secure log-in information to a web portal or app. E-mails, text invitations, or interview-operated telephone calls go directly to the address/number of the recruited panelist. When being called by phone, the panelist is requested by name. The way Foresight 50+ surveys are programmed and panelists are invited, panelists cannot take the survey more than once, and each panelist is always identifiable based on a unique ID. For these reasons, surveys of Foresight 50+ Panelists not suffer the problem of “bots,” fabricated profiles, non-invited respondents, or individuals or members of the household repeatedly and illegitimately taking the same survey.

Statistical Weighting & TrueNorth Calibration



The final weights that are delivered with the data are developed through three stages. First, probability and nonprobability sample weights are developed separately. Second, small area estimation is leveraged to model core estimates of the survey within to nonprobability sample.

Finally, the two samples are combined to create the final weights. These final two stages make up NORC's TrueNorth® Calibration.²

Stage 1: Core Probability and Nonprobability Weights

There are four unique steps to the development of core probability weights and two for core nonprobability weights. The four core probability weight steps are as follows:

Foresight 50+ Panel Weight: Weights developed for all panel members (supplemented by the AmeriSpeak panel for respondents aged 40-49) to account for their probability of selection into the sample of panel recruits, panel recruitment nonresponse adjustments, and poststratification adjustments of the recruited panel to match population benchmarks. The explanation on how panel weights are developed for Foresight 50+ can be found in the “Technical Overview of the Foresight 50+® Probability-Based Research Panel” in the Appendix of this report.

Probability Base Weight: The Foresight 50+ (supplemented by the AmeriSpeak panel for respondents aged 40-49) Panel Weight is then adjusted to account for the sample selection probability from the panel under the study sample design. The base weight is a product of the Foresight 50+ Panel Weight and the inverse of selection probabilities associated with sample selection from the panel.

Nonresponse Adjusted Probability Weight: The nonresponse adjusted weight is created by adjusting the base weights for nonrespondents to compensate for nonrespondents within nonresponse weighting classes defined by age, race/ethnicity, gender, and education. Within each weighting class, the nonresponse adjusted weight is the product of the base weight and the inverse of the weighted response rate.

Probability Weight (40+ Gen Population) is the nonresponse adjusted weight calibrated to population benchmarks through raking ratio adjustments. For the nonprobability sample cases, the raking adjustments are applied to their base weights. The raking variables are detailed after the description of the core nonprobability weight.

² More on TrueNorth Calibration can also be found here: <https://amerispeak.norc.org/us/en/amerispeak/our-capabilities/truenorth.html>.

Probability Weight (40+ Gamers) is the nonresponse adjusted weight calibrated to population benchmarks through raking ratio adjustments. This survey includes a screener question to define the targeted study population of 40+ Americans who play games via digital devices (mobile, PC, console, etc.) and no known or reliable benchmarks are available for this target population. As a result, raking adjustments for this study involve two steps. The first is a raking adjustment of screener completes to align them with population benchmarks for 40+ Americans. Once screener completes are adjusted to population benchmarks of those invited to answer the screener questions, we use the weighted counts of the survey eligible respondents to define the benchmarks for the target population for our study. The nonresponse adjusted weights for survey completes are then raked to align them to estimated benchmarks derived from the screener completes. The raking variables are detailed after the description of the core nonprobability weight.

The two nonprobability sample weights are developed in the following stages:

Nonprobability Base Weight: There are no known probabilities of selection for nonprobability sample cases. As such it is common in other hybrid (probability and nonprobability) sample combination schemes to simply give nonprobability cases a base weight of 1. Under TrueNorth, the nonprobability sample weights are developed through statistical matching and propensity weighting. Statistical matching involves matching each nonprobability sample unit to one or more probability sample units based on a set of matching variables. The matching process divides the probability sample into two sets: the set of units matched to the nonprobability sample unit and the set not matched. The matched set is then used as a reference sample to develop the propensity weights for the nonprobability sample units. Propensity weighting is carried out in the following steps: (1) concatenate the matched probability sample and the nonprobability sample; (2) create a dichotomous indicator variable, 1 for nonprobability sample units and 0 for matched probability units; (3) fit a logistic regression model to predict the probability of inclusion for the nonprobability sample units; and (4) weight the nonprobability sample unit as the reciprocal of the predicted probabilities.

Nonprobability Weight: The base weight is then raked to the same population benchmarks as those used for raking the probability sample.

Probability and Nonprobability Raking Targets: The benchmarks used for raking both probability and nonprobability samples are:

- Age x Gender:** 40-49 Male, 40-49 Female, 50-59 Male, 50-59 Female, 60-69 Male, 60-69 Female, 70+ Male, and 70+ Female
- Age x Race/Ethnicity:** 40-49 Hispanic, 50-59 Hispanic, 60-69 Hispanic, 70+ Hispanic, 40-49 Black NH, 50-59 Black NH, 60-69 Black NH, 70+ Black NH, 40-49 AAPI NH, 50-59 AAPI NH, 60-69 AAPI NH, 70+ AAPI NH, 40-49 NH Other, 50-59 NH Other, 60-69 NH Other, 70+ NH Other
- Race x Region:** Black/NH Northeast, Hispanic Northeast, and AAPI/NH Northeast, NH Other Northeast, Black/NH Midwest, Hispanic Midwest, and AAPI/NH Midwest, NH Other Midwest, Black/NH South, Hispanic South, and AAPI/NH South, NH Other South, Black/NH West, Hispanic West, and AAPI/NH West, NH Other West
- Race x Education:** Black/NH <High School, Black/NH High School/GED, Black/NH Some College, and Black/NH BA and Above, Hispanic <High School, Hispanic High School/GED, Hispanic Some College, and Hispanic BA and Above, AAPI/NH <High School, AAPI/NH High School/GED, AAPI/NH Some College, and AAPI/NH BA and Above, NH Other <High School, NH Other High School/GED, NH Other Some College, and NH Other BA and Above
- Gender x Race:** Male Hispanic, Male Black/NH, Male AAPI/NH, Male NH Other, Female Hispanic, Female Black/NH, Female AAPI/NH, Female NH Other
- Age x AARP Membership:** 40-49 Member, 40-49 Non-Member, 50-59 Member, 50-59 Non-Member, 60-69 Member, 60-69 Non-Member, 70+ Member, and 70+ Non-Member
- Gamer/Non-Gamer x Age:** 40-49 Gamer, 40-49 Non-Gamer, 50-59 Gamer, 50-59 Non-Gamer, 60-69 Gamer, 60-69 Non-Gamer, 70+ Gamer, and 70+ Non-Gamer
- Gamer/Non-Gamer x Gender:** Male Gamer, Male Non-Gamer, Female Gamer, Female Non-Gamer
- Gamer/Non-Gamer x Race:** Black/NH Gamer, Black/NH Non-Gamer, Hispanic Gamer, Hispanic Non-Gamer, AAPI/NH Gamer, AAPI/NH Non-Gamer, NH Other Gamer, NH Other Non-Gamer

These population benchmarks are obtained from the Current Population Survey, except for Household Phone Status, which is determined by the National Institutes of Health bi-annual survey on wireless substitutions.³ AARP membership comes from AARP.

Any extreme weights are trimmed based on a criterion of minimizing the mean squared error associated with key survey estimates.

Stage 2: TrueNorth Small Domain Modelling Calibration

At the core of the TrueNorth calibration method is a small area modeling⁴ procedure conducted in the following steps:

- First, we identify a set of 3 key response variables from the survey using a machine learning approach called gradient boosted tree modelling. This method is used to identify the key response variables that are associated with the largest bias in the nonprobability sample and also are highly correlated with other response variables.
- Second, we defined a set of domains in the data, where each domain is a specific, relevant subgroup for data analysis and reporting. These domains were defined by a set of demographic variables including Race/Ethnicity, Age, Gender, and Education.
- Third, we fitted domain-level small area models for each of the response variables identified earlier using the weighted probability sample and nonprobability sample domain-level estimates as input. These estimates are weighted estimates where the weights are the final probability and nonprobability weights, respectively. The model included covariates, domain-level random effects, and sampling errors. The covariates were external data available from American

³ Blumberg SJ, Luke JV. Wireless substitution: Early Release of Estimates from the National Health Interview Survey, January-June 2021. National Center for Health Statistics. November 2021. Available from: <https://www.cdc.gov/nchs/nhis.htm>

⁴ Rao J, Molina I. Small Area Estimation. 2nd ed. Hoboken, NJ: Wiley; 2015. doi:10.1002/9781118735855

Community Survey (ACS), the Current Population Survey (CPS), and AARP for membership distribution.

- Fourth, the fitted small area models provide predicted values for each domain and for each response variable, which are then used for the final weighting step described below.

Stage 3: Final Combined Study Weight

The final combined probability and nonprobability sample weight was derived by raking both sampled together, using the same benchmarks for age, gender, division, race/ethnicity, education, housing tenure, household phone status, age x gender, and age x race/ethnicity noted earlier, plus the predicted values for each domain for each response variable modelled in the small area modelling process.

Additional Oversample Weights

This survey includes an oversample of Black, Hispanic, and AAPI groups which were weighted down to its proportions in the overall population in the final main study weights. Some survey packages are not able to recognize weight variations and do not leverage the full potential of an oversample when testing for statistical significance. The basic SPSS package (without the additional Complex Samples Module) has this limitation, while SAS, Stata, and most R packages do not. Since we are delivering this data in an SPSS format, we have also included three weight variable that will be applied when looking at the oversample race/ethnicity group `WEIGHT_SCR_OS_Racethnicity`, oversample gamer and non-gamer sample `[WEIGHT_GAMERS_NONGAMERS]` and when looking at the race/ethnicity groups `[WEIGHT_OS_Racethnicity]` among gamers.

The weight values in an oversample weight variable scale up the oversampled group(s) to their actual unweighted sample size. Analyzing the data using this weight variable should only occur when analyzing the oversampled group or any subgroup that is wholly composed of the oversampled group, or when comparing the oversampled with a group outside of that oversample. It is inappropriate to use the oversample weight variable when analyzing the overall survey sample or any subgroup that overlaps (does not fit completely within or without) an oversampled group. Using this weight variable in this inappropriate way will lead to incorrect results that are skewed toward the results of the oversampled groups. It is important to note that, when analyzing the oversampled group, results will be the same whether one is using the oversample weight variable or the main weight variable. This difference is limited to the margin of error attained in data from the oversample and non-oversampled groups. Without the use of this weight, the margin of error for the oversampled group would be (typically) much larger than the true value, and the margin of error for the non-oversampled group would be lower. In addition, as the main weight will reduce the effective sample size of the oversampled group, it can be the case that using this weight would lead to significant rounding errors, particularly in oversampled of very small populations (e.g., 5%).

Please see below for the weighting variables included in the final data file:

SPSS Screener Weighting Variables		
Weighting variable type	Name in SPSS	Purpose
Gen Pop Screener weight	WEIGHT_SCR_GENPOP	Used when calculating gen pop incidence
Oversample Screener weight	WEIGHT_SCR_OS_Racethnicity	Used ONLY for calculating incidence among race/ethnicity oversample group

SPSS Weighting Variables		
Weighting variable type	Name in SPSS	Purpose
Main weight	WEIGHT_GENPOP	Used when analyzing the entire study population
Gamers/Non-gamers weight	WEIGHT_GAMERS_NONGAMERS	Used ONLY for analyzing results of or within the gamers or non-gamers group
Race/ethnicity oversample weight	WEIGHT_OS_Racethnicity	Used ONLY for analyzing results of or within the oversampled race/ethnicity groups (Black, non-Hispanics, Hispanics, AAPI) within gamers group

Benchmark Comparisons (40+ General Population)

The following table shows the weighted and unweighted estimates for key demographics and compares them to population benchmarks.⁵

Demographic Category	Subcategory	Unweighted (%)	Weighted (%)	Benchmark (%)
Age	40 - 49	22.6	24.3	25.2
	50 - 64	39.4	40.2	39.3
	65 +	38.0	35.4	35.4
Race/Ethnicity	Non-Hispanic White	66.0	68.8	67.4
	Non-Hispanic Black	12.6	10.9	11.1
	Hispanic	10.4	11.7	13.9
	Non-Hispanic Asian/Pacific Islander	7.5	5.5	6.0
	Non-Hispanic Others	3.5	3.1	1.6
Education Status	Less than High School	1.9	7.3	9.7
	High School Equivalent	14.2	28.5	28.9
	Some College/Associate Degree	35.5	26.3	25.1
	Bachelor's Degree	26.5	20.7	21.6
	Graduate Degree	21.9	17.3	14.7
Sex	Male	41.8	46.9	47.4
	Female	58.2	53.1	52.6

As a part of the AAPOR Transparency Initiative, it is incumbent on us to state that there are no perfect studies, and all research and methods have their limitations. The purpose of this document is to make apparent, for this study, some possible limitations, the steps taken to minimize them, and the potential or known sources of measurable or estimated error whenever possible. However, there is always going to be some unmeasured and unknowable error with all forms of public opinion research, including ours.

Design Effect and Sampling Margin of Error Calculations

40+ General Population

Study design effect: 2.07

Study margin of error: +/- 1.72 pts

40+ Gamers Sample

Study design effect: 2.05

Study margin of error: +/- 2.27 pts

Under TrueNorth calibration, combined probability and nonprobability sample yields approximately unbiased estimates. The margins of error reported here reflect the sampling variation of the probability sample as well as the TrueNorth model-assisted calibration procedures that generate the combined sample weights. As such, it is reasonable for analysts using this data to employ standard methods for approximating margins of error and statistical significance, although there is no statistically agreed upon approach to doing this when utilizing nonprobability samples.

⁵ Because we trim the weights to remove extreme weights and hold down weight variation, the final study weights may end up deviating from exact populations benchmarks by small but acceptable amounts. Even without trimming, there can be a limit in the ability to perfectly match benchmarks along all variables and categories included in the raking procedure. Our goal is to rake as close as possible before trimming.

HOW TO DESCRIBE FORESIGHT 50+, AARP, AND NORC @ THE UNIVERSITY OF CHICAGO

For purposes of publication, when describing the Foresight 50+ Panel and its methodology, we recommend using the following language:

AARP and NORC at the University of Chicago joined forces in 2021 to create **Foresight 50+®**, a probability-based panel designed to be nation's largest, high-quality, representative research panel of the U.S. population aged 50 and older. Randomly selected US households are sampled using area probability and address-based sampling, with a known, non-zero probability of selection. Foresight 50+ goes the extra mile to recruit a panel that represents every segment of America's diverse 50 and over population. Foresight 50+ features a rigorous recruitment process, with multiple follow ups—including sending field interviews to the door to ensure a high response rate. The result is a scientific rigorous and representative panel that includes some of the hardest to reach populations like rural and lower-income households, Spanish speakers, and less-educated people

For more information, email Foresight50-bd@norc.org or visit Foresight50.NORC.org

If editors or reviewers are requesting anything more specific or any other detail, please reach out to us to make certain you are using accurate language.

For a less technical, panel-specific description of **Foresight 50+**, we recommend:

AARP is best described as follows:

AARP is the nation's largest nonprofit, nonpartisan organization dedicated to empowering people 50 and older to choose how they live as they age. With nearly 38 million members and offices in every state, the District of Columbia, Puerto Rico and the U.S. Virgin Islands, AARP works to strengthen communities and advocate for what matters most to families with a focus on health security, financial stability, and personal fulfillment. AARP also works for individuals in the marketplace by sparking new solutions and allowing carefully chosen high-quality products and services to carry the AARP name. As a trusted source for news and information, AARP produces the nation's largest circulation publications, AARP The Magazine and AARP Bulletin. www.aarp.org

NORC at the University of Chicago is best described as follows:

NORC at the University of Chicago conducts research and analysis that decision-makers trust. As a nonpartisan research organization and a pioneer in measuring and understanding the world, NORC has studied almost every aspect of the human experience and every major news event for more than eight decades. Today, NORC partners with government, corporate, and nonprofit clients around the world to provide the objectivity and expertise necessary to inform the critical decisions facing society. www.norc.org

Please refer to the full name "NORC at the University of Chicago" when first mentioning us. Using simply "NORC," thereafter, is fine. Our name is now only the acronym and does not need to be spelled out.

APPENDIX

TECHNICAL OVERVIEW OF THE FORESIGHT 50+® PROBABILITY-BASED RESEARCH PANEL

Updated March 1, 2022

This report summarizes the procedures for creating the Foresight 50+ Panel, a probability-based panel designed to be representative of the U.S. household population age 50 or older. A joint effort by AARP and NORC at the University of Chicago, Foresight 50+ draws from NORC's AmeriSpeak household panel. As of this writing, the Foresight 50+ Panel currently contains 26,816 active panelists, which makes it the largest high-quality research panel of Americans aged 50 and over. Foresight 50+ combines the commercial expertise of AARP with the trusted science of NORC to amplify the voice of this influential group of Americans. The panel is constructed integrating two separate approaches to recruitment. The methods for both approaches are based on probability, employ a rigorous sample design and recruitment methodology, and are designed to be representative of the 50+ U.S. population, including all 50 states and the District of Columbia. In this report, we first provide basic information about the construction. We then discuss the integration of the panelist from each of these approaches to create the Foresight 50+, focusing on how the Foresight 50+ panel weights are developed. We will refer to the two approaches to sampling for and recruiting panelists as "Approach A" and "Approach B."

Recruitment Approach A

As of this writing, 79.1% (n=21,202) of the Foresight 50+ Panel was recruited through Approach A. This will also be the approach for new recruits to the Foresight 50+ Panel going forward. The sampling frame for this approach is a household frame, and the recruitment that occurred is of household members 18+, but only those 50+ become part of the Foresight 50+ Panel. U.S. households are randomly selected with a known, non-zero probability from the NORC National Frame as well as supplemental address-based sample frames, and then recruited by mail, telephone, and by field interviewers face to face. The National Frame is a multistage probability sample that fully represents the U.S. household population. The primary sampling units (PSUs) in the first stage sample selection are 1,917 National Frame Areas (NFAs), each of which is an entire metropolitan area (made up of one or more counties), a county, or a group of counties with a minimum population of 10,000. A total of 126 NFAs are selected in the first stage, including 38 certainty NFAs, 60 urban NFAs, and 28 non-urban NFAs. The largest 38 NFAs, those with a population of at least 1,543,728 (0.5 percent of the 2010 Census U.S. population), were selected into the National Frame with certainty.

Within the 126 selected NFAs, the secondary sampling units (SSUs) are area segments defined from Census tracts or block groups, where each segment contains at least 300 housing units according to the 2010 Census. Within the certainty NFAs, a sample of 896 segments was selected using systematic PPS sampling, where the size of a segment is the number of housing units. Implicit stratification was achieved by sorting the segments by location (NFA, state, and county), principal city indicator, and ethnic and income indicators. From each urban and rural NFA, a sample of 8 and 5 segments was selected,

respectively, using systematic PPS sampling where the measure of size is the number of housing units per segment. A total of 618 segments are selected from the non-certainty NFAs. Overall, a stratified probability sample of 1,514 segments was selected into the National Frame in the second stage sampling.

Within the selected segments, all housing units are listed using the U.S. Postal Service Delivery Sequence File (DSF). In the 123 segments where the DSF coverage is deemed inadequate, the DSF address list is enhanced with an in-person field listing to improve coverage. The final National Frame, consisting of all listed households in the sample segments, is estimated to provide over 97 percent coverage of the U.S. household population. It contains almost 3 million households, including over 80,000 rural households that are added through in-person listing. In addition to NORC's National Frame, the DSF is used as a supplemental sample frame in four states. Although nationally representative, the National Frame does not include households from Alaska, Iowa, North Dakota, and Wyoming. Since 2016, the annual panel recruitment sample has included a small address-based sample (ABS) from these four states to assure presence in all U.S. States and Washington, D.C.

For panel sample selection, National Frame segments are stratified into six sampling strata based on the race/ethnicity and age composition of each segment. Areas with a higher concentration of young adults, Hispanics, and non-Hispanic African-Americans are oversample to improve their representation in the panel. In more recent recruitment sampling, we have also used two-phase designs where commercial vendor data are used to stratify the second phase sample to improve the efficiency of targeting hard-to-reach populations.

Recruitment to the panel using this approach is a two-stage process: (i) initial recruitment using four USPS mailings, telephone contact, and both pre (\$5) and post (\$25-\$50) incentives, and (ii) a more elaborate nonresponse follow-up (NRFU) recruitment that includes an invitation packet sent via Federal Express, additional incentives, and in-person field visits by NORC field interviewers. Once the households are located, the field interviewers administer the recruitment survey in-person using CAPI or else encourage the respondents to register online or by telephone. This is considered the highest effort, and highest response rate probability panel survey in the United States.

A sample household is considered recruited or responded if at least one adult in the household joins the panel. The weighted household response rate (AAPOR RR3) is about 6% for initial recruitment and 28% for NRFU recruitment. For all recruitment years, the cumulative weighted household response rate is 21.9%; for recruitment years with NRFU, the cumulative weighted household response rate is 23.0%.

Recruitment Approach B

As of this writing, 20.9% (n=5,614) of the panel were recruited using an alternative approach to achieving a nationally representative probability-based methodology. The proportion of the panel using this approach is growing smaller over time, as the use of this approach ended in 2019. From 2015 to 2019, these panelists were recruited annually via a stratified random sample from a national household address file that was assessed to have over 96% coverage of all 50+ households in the U.S. The six sampling strata were defined by age (50-59, 60-69, 70+) and AARP membership status. Sample households were recruited through a series of mailings, phone contacts (for those households with a phone number), and online contacts (for those households with an email address). The major recruitment steps were:

- Step 1 – All households received postal mail inviting them to join the panel by either a) going online to a specific website or b) calling a toll-free number. Included in this invitation was a pre-paid incentive of \$1.
- Step 2 – All households for which an email address was appended and verified received an email invitation to join the panel (in addition to the postal mail invitation outlined in Step 1).
- Step 3 – Households that did not respond in Step 1 or Step 2, excluding those who refused, AND where a phone number was available, received a series of reminder phone calls.
- Step 4 – All those who did not respond in Step 3 (excluding those who refused) AND all those from Step 1 and 2 without a phone number or email available, received a second postal mail invite that included a registration card to be mailed back.
- Step 5 – All those who did not respond in Step 4 (excluding those who refused) receive a third and final postal mail invite in the form of a large postcard urging them to respond and letting them know this was their final opportunity to join the panel.

In 2021, when Foresight 50+ was created with the integration of panelists using these two approaches. Explicit consent was requested of panelists who were recruited using Approach B to join this integrated panel. At that point, 5,900 of the 12,205 respondents originally recruited through Approach B gave consent and are currently part of the Foresight 50+ Panel.

Foresight 50+ Panel

Foresight 50+ panelists complete a profile survey, which collects basic demographic information about them. To integrate the two approaches, panel weights were developed such that the combined panel collectively represents the U.S. population aged 50 and over. In this section, we focus on the procedures for developing the Foresight 50+ panel weights. The weighting steps involve the following:

- Compute a panelist panel weight;
 - For panelists from recruitment approach B, their final panel weight included migration nonresponse adjustments
- Compute an integrated weight for the two combined approaches

Approach A Pre-Integration Panel Weights

To develop the panel weights for Recruitment Approach A, NORC first computed the panel weight as the inverse of the probability of selection from the NORC National Frame (the sampling frame that is used to sample housing units for Foresight 50+) or other address-based sample frames (supplemental panel samples were selected from frames developed from the USPS Delivery Sequence Files). The sample design and recruitment protocol for recruited panelists using this approach involve unequal sampling rates across the sampling strata and additional subsampling of initial nonresponding housing units for in-person nonresponse follow-up (NRFU). The panel weights reflect all the variations in panel sample selection probabilities. The panel weights are then adjusted to account for unknown eligibility and nonresponse among eligible housing units. These adjustments were conducted using weighting classes defined by some household characteristics provided by commercial data vendors, including partisan score, political party identification, the presence of young adult(s), and minority status. To produce the final household weights, the household-level nonresponse adjusted weights are post-stratified to match the number of households per census division obtained from the most recent Current Population Survey (CPS). Final household weights are assigned to each eligible adult in the recruited household. These person-level weights are then adjusted to compensate for nonresponding adults within a recruited household. Finally, the nonresponse adjusted person-level panel weights are raked to population totals associated with the following variables:

Variables & the Variable Categories for Approach A Recruitment Non-Response Raking

Age: 50-59, 60-64, and 65+

Gender: Male and Female

Census Division: New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific

Race/Ethnicity: Non-Hispanic White, Non-Hispanic Black, Hispanic, and Non-Hispanic Other

Education: Less than High School, High School/GED, Some College, and BA and Above

Housing Tenure: Home Owner and Other

Household phone status: Cell Phone-only, Dual User, and Landline-only/Phoneless

Age x Gender: Female, 50-64 Male, 50-64 Female, 65+ Male, and 65+ Female

Age x Race/Ethnicity: 50-64 Non-Hispanic White, 50-64 All Other, 65+ Non-Hispanic White, and 65+ All Other

The external population totals are obtained from the Current Population Survey, except for Household Phone Status, which is determined by the National Institutes of Health bi-annual survey on wireless substitutions.⁶ The weights adjusted to the external population totals are the *final panel weights* for panelists recruited through Approach A.

⁶ Blumberg SJ, Luke JV. Wireless substitution: Early Release of Estimates from the National Health Interview Survey, January-June 2021. National Center for Health Statistics. November 2021. Available from: <https://www.cdc.gov/nchs/nhis.htm>

Approach B Pre-Integration Panel Weights

The panel weights for Recruitment Approach B are computed as the ratio of population size to the number of panelists within each of the six sampling strata. Both population and sample sizes are totals across the five recruitment years. The panel weights are then adjusted to compensate for those who refused during the migration recruitment (meaning they were originally recruited through Approach B, but declined to join the integrated Foresight 50+ Panel). The adjustment cells are defined by age, gender, race/ethnicity, and education. The weights are raked to population benchmarks by age, gender, race/ethnicity, education, housing tenure, telephone status, and census division, the same set of variables outlined above that are used to rake the panelist recruited using Approach A.

Integration of Panel Weights to Produce Final Foresight 50+ Panel Weight

In the final step, the panel weights for Approach A and the panel weights for Approach B are combined to produce the final integrated panel weights for the Foresight 50+ Panel. The weight combination is accomplished using a combination factor, k , which is proportional to the relative effective sample size of those recruited for each approach, where the effective sample size is defined as the nominal sample size divided by the weighting effect per panel. A different k is used for different combination cells defined by age, gender, race/ethnicity, and education. The resulting Foresight 50+ panel weights sum to the total U.S. population aged 50 and over for each of the combination files.

The Foresight 50+ Panel is regularly refreshed to reflect the most recent sample as well as the target population. Panel refreshment involves adding new panelists, removing panelists who dropped out of the panel, imputing missing data on key variables, and recomputing panel weights. As noted earlier, all panelists added to the panel going forward are recruited using Approach A.

The current Foresight 50+ Panel consists of a representative cross-section of the U.S. 50+ population. As of March 2022, the Foresight 50+ Panel contains a total of 26,816 panelists. Of all the panelists, 40% are men and 60% are women; 34% are 50-59 years of age, 36% are 60-69 years of age, and, 30% are 70 or over; 69% are non-Hispanic white, 14% are non-Hispanic black, 10% are Hispanic, and 7% other races; 6% have less than high school education, 17% have a high school education, 36% have some college or associate degree, and 41% have a bachelor's degree or higher, 31% are AARP members and 69% are nonmembers.

Additional Resources

To learn more about Foresight 50+ Panel, please email Foresight50-bd@norc.org or visit Foresight50.NORC.org.

Statistical Analysis Overview

Segmentation

Methodology: K-Means Clustering Analysis

Process:

1. **Initial questions were identified for model input based on:**
 - a. Overall study objectives
 - b. Prior research and segmentation X
 - c. Degree of variability within the data upon analysis
2. **5 separate models were run and analyzed with the following intent:**
 - a. Like-for-like 2019 model (device, time of day play, genre, spend, motivations, eSports familiarity)
 - b. 50-plus model with expanded variables (device, hours spent playing, play behavior, social connection interest, meaningful play, motivations, gameplay features, gaming reasons)
 - c. 40+ model with expanded variables (device, hours spent playing, play behavior, social connection interest, meaningful play, motivations, gameplay features, gaming reasons)
 - d. 50-plus model with selected variables (motivations, gaming self-perceptions)
 - e. 40+ model with selected variables (motivations, gaming self-perceptions)
 - f. Unique Motivations to Play represent highest indexing Motivations for the segment vs. total. Motivation had to have been selected by more than 5% of the segment and scored higher than total to qualify as uniquely motivating.
3. **Variables were adjusted and transformed**
 - a. Initial gaming motivations was overpowering initial models, so gaming motivations (any ranked 1-3) was used as an alternative input into the scheme
 - b. Any variable with the Responses "Don't Know", "Refused" or "Skipped" were given a value of zero.
4. **Schemes were analyzed on various criteria:**
 - a. No uneven distribution of segments (i.e., no segment over 40%, no segment under 5%).
 - b. Segments that displayed diversity across data outside of input variables.
 - c. Intuitiveness of segments and ease of understanding.
 - d. Simplicity of replication in future studies.
5. **All models produced strong contender segmentation schemes, but schemes 4 and 5 stood out.**
 - a. Schemes 4 and 5 produced very comparable segments, except for the Enthusiast segment which did not exist in Segment 4.
 - b. Scheme 4 had slightly more muted behaviors that diluted the more passionate segments, whereas scheme 5 more effectively highlighted Enthusiast and Immersive segments. Scheme 5 has the added benefit of native 40–49-year-old segment allocation, meaning no loss in accuracy when looking at the segment breakdown of the 40–49-year-old group.
6. **Final scheme selected (scheme 5), can be predicted using the least number of questions in future studies:**
 - a. Age (minimum 40+)
 - b. Device Ownership (must own at least one electronic device that can be used for gaming)
 - c. Gaming Frequency (must play video games at least once per month – can be stretched to any gaming frequency)
 - d. Gaming Motivation Importance
 - e. Gaming Motivations: Rank Top 5 Motivations
 - f. Gaming Reasons for Play

Factor Analysis

Methodology: Principal Component Analysis

Process:

1. Principal Component Analysis was run to understand how different individual gaming motivations bucket into groups (factors) underpinning video game enjoyment.
2. Analysis was performed on the most important reasons underpinning enjoyment – respondents were asked to select and rank their top 5.
3. Initial Principal Component Analysis isolated 10 factors; some showing promise while others needed logical adjustments. Factors were a-priori adjusted to better combine “like-for-like” motivations, ultimately creating 8 factors.
4. Factor scores were calculated using the net score for top 3 importance for any item within the factor.

Final Factor Composition

Passing Time	To do something easy and repetitive, To do something I know I'm good at, To pass the time, To relax, To relieve boredom
Pleasure	To have fun, To have a thrilling experience
Mental Acuity	To be challenged / solve problems, To complete complex tasks, To feel youthful, To help stay mentally sharp, To learn something new
Emotion	To change my mood, To reduce stress
Immersion	To enjoy a great single-player experience, To experience a story, To experience something brand new, To explore new places, To have an immersive experience
Social-Connection	To meet new people, To play what all my friends are playing, To spend time with family, To spend time with friends, To stay connected and have someone to do things with
Challenge	To play something competitive, To play something strategic
Self-Improvement	To allow me to better myself in some way, To feel a sense of achievement, To help me exercise