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Measuring Attitudes Toward the Use of Technology in Relationships

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Abstract

The purpose of this study was to develop a measure of attitudes toward technology in marital relationships, the Assessment of Attitudes Toward Technology in Relationships (AATTR), and to determine its reliability and validity. Specifically, we assessed the attitudes, either positive or negative, of both cell phone usage for interspousal communication and attitudes of television viewing in the home as a means of spending time together. We recruited participants via convenience sampling, distributed an anonymous survey on Facebook and Brigham Young University's Learning Suite (a site created by the school to facilitate course organization and teacher-student interactions), and had 154 participants complete the questionnaire. To select the questions for the survey, 30 questions were compared in a Content Validity Ratio analysis, and the 10 highest-scoring questions were selected for the questionnaire, because these questions had the highest likelihood to produce reliable and valid results. In examining the AATTR, a statistical analysis showed that the AATTR was neither reliable nor valid. Cronbach's alpha revealed poor internal consistency ($\alpha = .54$). Pearson's bivariate analysis indicated a weak linear relationship between test items. Face validity was also poor: only 3.9% of the participants correctly identified the construct or purpose of the survey. The analyses indicate that the AATTR is not ready for real-world application at this time. Further revisions and research are needed to create a reliable and valid measure.

Keywords: cell phone use, television use, validity, reliability, measurement of attitudes toward technology use

Measuring Attitudes Toward the Use of Technology in Relationships

In recent years, the impact of technology on individuals has become exponentially larger (Bose, 2010). For example, cell phones and television have become an integral part of everyday life and a popular topic in interpersonal conversation. Many new measures have been developed in an attempt to understand differing attitudes toward technology in general society, in the workplace, and in the classroom (e.g., the Technology Acceptance Model [TAM]), but none of these measurements look at attitudes toward technology, specifically within the context of marital relationships (Davis, 1993; Goldman & Kaplan, 1972; Van Volkom, Stapley, & Amaturro, 2014). Measuring attitudes toward technology in marital relationships is important because technology is intertwined with almost every part of people's lives. Although a positive correlation has been found between the perceived usefulness of technology in the workplace and the belief that technology is useful in dealing with relationship and family conflict, current measures of the acceptance of technology in the workplace should not be considered valid indicators of its acceptance in the home because the tests are designed to measure divergent aspects of technological acceptance (Fenner & Renn, 2010). To understand the acceptance and place of technology in marriage, a new measure ought to be used.

We will measure individuals' attitudes toward technology in marriage through two components: attitudes toward cell phone usage with one's spouse and attitudes toward the use of television in the home. In other words, this study focused on cell phone usage in interspousal communications and the use of television as a means of spending time together. The specific operational definitions are found in the next paragraph. The Assessment of Attitudes Toward Technology in Relationships (AATTR) may be helpful to any family counselor or researcher interested in the impact of technology in the home and in marriages so that they may understand how to best help others if issues arise involving technology.. The AATTR is also valuable because it can show the attitudes or expectations toward technology, which can help

researchers better understand what roles technology may play in the relationship (e.g., communication, entertainment, disputes). From what we have seen in current studies that involve measuring attitudes toward technology in relationships, researchers develop their own methods of measurement unique to each study; therefore, a new, standardized method, generalizable to all relationships that take place in areas with access to technology, should be created that can produce reliable results and that can be analyzed and compared between studies.

For the purposes of this study, we operationally define attitudes toward technology in relationships as the degree to which a person accepts the use of technology in communicating and spending time with his or her spouse as manifested through cell phone and television usage. We define the first domain, cell phone usage, as a medium of communication between spouses that includes texting, calling, or any other impersonal form of communication through a cell phone. As for the other domain, we operationally define television usage as the amount of time television is used as a means of spending time together. These two domains should indicate couples' attitudes toward cell phones and television and their place in a relationship.

Research shows that marital communication is key to relationship success, so cell phone usage as a means of communicating with one's spouse may affect the success of a relationship and could be an important way to measure the acceptance of technology in a relationship (Lavner & Bradbury, 2012). For the estimated 85% of North Americans that own cellular phones, the cell phone may be the most frequently used form of technology because it is on one's person most of the day (Smith, 2012). Cell phone usage can impact the types of communication and the levels of commitment in daily marital living, which are two strong predictors of divorce (Lavner & Bradbury, 2012). However, a measure does not exist that correlates cell phone use with attitudes toward technology. Measuring types of communication in marital relationships has been conducted through observation only, relying on the researcher's ability to explicitly state what emotions and

attitudes are involved when using different forms of communication (Lavner & Bradbury, 2012). Because researchers cannot accurately make these judgments, a self-report measure may be more accurate in determining people's attitudes.

Attitudes toward television usage is another useful domain for measuring the acceptance of technology in a relationship. In recent years, television has played a large part in many American lives, especially in the rising generations. Research shows that children from the ages of 8–18 spend an average of 7.38 hours a day watching television and that the amount of television watched by youth increases every year, suggesting that television plays a significant role in life from a young age (Bose, 2010). As individuals age into adulthood, television may be more likely to create certain attitudes about different aspects of romantic life (Rivadeneira & Lebo, 2008). Correlations have also shown that the level of personal commitment to the relationship decreases as romantic couples increase the amount of dedicated television viewing time together (Reizer & Hetsroni, 2014). Because of its role in people's daily lives and its effects on relationships, television can be useful in measuring people's acceptance of technology in relationships.

We anticipate that the AATTR will be useful for many future studies seeking to understand direct correlations between attitudes toward technology in relationships and marital quality, marital satisfaction, and marital success. Studies show that measures of both cell phone and television usage in relationships are good indicators of attitudes toward technology in relationships because they are among the most commonly used forms of technology and they play a daily role in the communication and interaction of many couples; however, there currently are not any measures that use these two domains for measuring attitudes toward the use of technology in relationships. In order to better understand these attitudes, a measure incorporating these two domains should be developed, so we created the AATTR. We hypothesize that the AATTR will be a valid and reliable measure of attitudes toward technology as a form of communicating and interacting with one's spouse.

Method

Participants

There were 154 participants in this study, 84% (128) of whom were female and 16% (26) of whom were male (see Table 1). Concerning the ethnic distribution of our sample, 94.67% of the participants were White, 2% were Asian, 2% were Native American, .67% were Pacific Islander, and .67% identified themselves as “other.” The average age of the participants was 33.71, the youngest being 18 and the oldest being 75. Most of the participants were married (92.21%) or in a relationship (5.19%), with only four participants (2.60%) being single. The participants were recruited using convenience sampling. They volunteered to participate in the study by filling out an anonymous survey via Facebook (www.facebook.com) or BYU Learning Suite (learningsuite.byu.edu).

Item Construction

The AATTR was generated from a pool of 30 questions. Thirty-nine undergraduate psychology students judged the relevance of each of the 30 questions to our two domains. Content validity ratio (CVR) ratings were calculated and 10 questions were selected to be used in the survey. The CVR ratings for these 10 selected questions ranged from .44 to .79 ($M = .63$ $SD = .12$; see Table 2). We did not include two questions with better CVR ratings in order to include questions that were not too similar so that we could obtain a better range of opinions and reduce the number of thoughtless responses.

Test Administration

The AATTR was administered electronically through Qualtrics (www.qualtrics.com), a survey engine website, via an anonymous link posted on Facebook and BYU Learning Suite from February 18 – 27, 2017. Convenience sampling was used to gather the information.

Statistical Analysis

As mentioned above, we used CVR ratings to analyze content

validity and select our items for use in the questionnaire. After administration, we used Cronbach's alpha and Pearson's bivariate correlations in order to assess the internal consistency and reliability of the AATTR. Face validity was checked using an open-ended question at the end of the AATTR that asked respondents what they thought the assessment was supposed to measure. Two factors were chosen to be analyzed through information given from the scree plot deflections and eigenvalues. All analyses took place using STATA 14.

Results

Through factor analysis, and measuring for reliability and validity, we were able to determine the effectiveness and quality of the AATTR.

Factor Analysis

A factor analysis revealed two components that accounted for 107.29% of the variance and had eigenvalues of 1.51 and .89 (see Table 3; Figure 1). This two-factor solution was consistent with the original design of the questionnaire to assess only two factors. Questions 2, 3, 5, 6, and 7 had primary loadings on the first factor, and questions 9 and 10 loaded primarily on the second factor (see Table 4). Questions 1, 4, and 8 did not significantly load onto either of the two factors (see Table 4). These findings do not align with the organization of the two domains we intended to analyze.

Reliability

Cronbach's alpha indicated that the test's internal consistency was poor ($\alpha = .54$; see Table 5). This indicates that the questions did not vary together or are closely related as a set of items as a group. A Pearson's bivariate analysis revealed 15 of 45 correlations were significant, indicating a weak linear relationship between the majority of the test items ($p < .05$; see Table 6).

Validity

Overall, our questionnaire provided mostly strong content validity. Seven of ten questions had superior content validity ($\geq .55$),

one question had high content validity ($\geq .45$), and two questions had moderate content validity ($\geq .35$; see Table 2). Six percent of our participants correctly identified the construct, indicating that the test had low face validity.

Discussion

Due to the importance of romantic relationships and the increasing rise in technology, we created the AATTR, which is a test that can measure attitudes toward technology specifically within marital relationships, a standardized measure of which currently does not exist. After obtaining the results from the AATTR, we assessed its psychometric properties and factor structure. We conducted a factor analysis and two significant components were found. Although the original test was designed to target two domains, the factor matrix revealed that a lot of loading on the first domain was present, meaning that most of the associations targeted only one domain. Furthermore, the items loading onto this domain came from those intended to measure two separate domains. Due to these results, we cannot be sure what this first domain is, but it is most likely a mixture of our original domains: attitudes toward cell phone usage with one's spouse and attitudes toward the use of television with one's spouse in the home. Perhaps these two domains are too similar to be measured separately. Also, it is possible the questions were not worded well enough to create two different domains. These loadings affected the construct validity of our domain and did not support our hypothesis that the test would be valid. In future versions of the AATTR, we would seek to establish more distinct domains in our construct and create better questions to increase construct validity.

The content validity was found to be moderately strong. However, error could have occurred in the CVR calculations due to the lack of expertise among the panelists; the panelists were undergraduate students in a psychology course. Furthermore, the panelists were assigned to participate and were not experts in marital relationships or in attitudes toward technology. The ratings given for the original questions could have been the results of

misunderstandings of the construct and domains. The ratings also could have been inaccurate because the students may not have been invested in the questionnaire's validity, perhaps due to the ratings being considered an assignment, and therefore may have rushed through the assignment in order to complete it before the due date rather than seriously reflecting on how each of the items pertained to the construct.

Although the content validity of the ATTRR was moderately strong, the face validity was very poor. One possible source of the low face validity is the specificity of our construct and the participants' lack of familiarity with technical terms that may have helped them to identify our construct. While a vast majority of the participants recognized that the measure pertained to technology in relationships, they failed to acknowledge that its target was attitudes toward technology rather than technology use or effects. In general, the sample of participants was also unrepresentative of married couples because a vast majority of the participants were Caucasian females, which also makes for poor external validity. The poor sampling was probably due to the lack of funding and time that we had when gathering information, which is why we used convenience sampling. Overall, the validity of the AATTR is not impressive and is unable to support our hypothesis due to the low validity within most validity subcategories.

Furthermore, strong reliability must exist in order to obtain strong validity. Both the Pearson's coefficient and the Cronbach's alpha indicate poor reliability, perhaps due to the fact that questions 1, 41, 4, and 8 did not load onto the two factors found in the factor analysis. This may not be a serious problem in a more extensive questionnaire, but it has a large impact on the reliability of the AATTR due to the small size of the AATTR questionnaire. Poor reliability is further evidence that we have poor validity. Taking all the results into consideration, the statistics indicate that our hypothesis could not be supported.

Due to poor external validity, the application of our measure to research is extremely limited. In future studies, many of these problems with validity can be addressed fairly easily. A more

representative sample could be used to improve external reliability, expert panelists could ensure the accuracy of the CVR calculations, and perhaps rewording the questions or incorporating additional items could improve reliability and face validity. If these problems are corrected, the AATTR may be useful in many relationship situations, especially for couples' counselors. Such a measure could be useful in understanding how attitudes toward technology are related to marital quality, satisfaction, and success, all of which are factors of interest for both researchers and users of technology. However, our measure is currently insufficient to apply to any real-world scenarios. The current version of the AATTR has many problems, and it may be simpler for future researchers to start over in constructing their own questions. Prospective studies should focus on developing an appropriate measure of attitudes toward technology in relationships whether it be through revision of the AATTR or through creation of a new measure.

We hypothesized that our test, the AATTR, would be both reliable and valid in measuring the attitudes toward technology in relationships. After distributing the test and analyzing the responses, we found that it was not a reliable or valid measure. The findings did not support our hypothesis, construct, or domains; therefore, we have to reject the AATTR as an acceptable measure of attitudes toward technology in relationships. More research is needed in order to find a more effective measure. Such a measure would be useful for couples' counselors in providing an additional dimension for analyzing the role technology plays in the home, which is important to understand in an age where technology is becoming increasingly involved in daily life.

References

- Bose, K. (2010, August). *Kids and digital media*. Retrieved from <http://www.med.umich.edu/yourchild/topics/tv.htm>
- Davis, F. D. (1993). User acceptance of information technology: System characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38(3), 475–487. doi:10.1006/imms.1993.1022
- Fenner, G. H., & Renn, R. W. (2010). Technology-assisted supplemental work and work-to-family conflict: The role of instrumentality beliefs, organizational expectations and time management. *Human Relations*, 63(1), 63–82. doi:10.1177/0018726709351064
- Goldman, R. B., & Kaplan, R. M. (1972). Development of a mechanization scale: Measurement of stereotypes of attitude toward technology. *Proceedings of the annual the Annual Convention of the American Psychological Association*, 7(1), 29–30. Retrieved from http://rmkaplan.bol.ucla.edu/Robert_M._Kaplan/1972_Reprints_files/0020.pdf
- Lavner, J. A., & Bradbury, T. N. (2012). Why do even satisfied newlyweds eventually go on to divorce? *Journal of Family Psychology*, 26(1), 1–10. doi:10.1037/a0025966
- Reizer, A., & Hetsroni, A. (2014). Media exposure and romantic relationship quality: A slippery slope? *Psychological Reports*, 114(1), 231–249. doi:10.2466/21.07.PR0.114k11w6
- Rivadeneira, R., & Lebo, M. J. (2008). Television: Reality or make-believe and its impact on adolescent relationships. *Clinician's Research Digest*, 26(8), 1.
- Smith, A. (2012). *The best (and worst) of mobile connectivity*. Retrieved from <http://www.pewinternet.org/Reports/2012/Best-Worst-Mobile.aspx>
- Van Volkom, M., Stapley, J. C., & Amaturio, V. (2014). Revisiting the digital divide: Generational differences in technology use in everyday life. *North American Journal of Psychology*, 16(3), 557–574. Retrieved from <https://www.greeleyschools.org/cms/lib2/CO01001723/Centricity/Domain/2387/Revisiting%20the%20Digital%20Divide.pdf>

Table 1 *Demographics of Study Participants*

| | Male | Female | Sum |
|-------------------------------------|-------|--------|-----|
| Total | 26 | 128 | 154 |
| White | 24 | 121 | 145 |
| African American | 0 | 0 | 0 |
| Asian | 0 | 3 | 3 |
| American Indian or Alaska Native | 1 | 2 | 3 |
| Native Hawaiian or Pacific Islander | 0 | 1 | 0 |
| Other | 1 | 1 | 2 |
| Single | 0 | 4 | 4 |
| Dating | 0 | 8 | 8 |
| Married | 26 | 116 | 142 |
| Average Age | 32.96 | 33.52 | |

Table 2 *Content Validity Ratios of
Questionnaire Items*

| Item | CVR |
|------|-----|
| 1 | .74 |
| 2 | .69 |
| 3 | .44 |
| 4 | .69 |
| 5 | .54 |
| 6 | .79 |
| 7 | .59 |
| 8 | .44 |
| 9 | .64 |
| 10 | .69 |

Table 3 *Variance of Questionnaire Items*

| Factor | Total Eigenvalue | % Variance | Cumulative % |
|--------|------------------|------------|--------------|
| 1 | 1.51 | 67.69 | 67.69 |
| 2 | 0.89 | 39.60 | 107.29 |
| 3 | 0.53 | 23.56 | 130.85 |
| 4 | 0.23 | 10.05 | 140.90 |
| 5 | 0.01 | 0.49 | 141.38 |
| 6 | -0.06 | -2.48 | 138.90 |
| 7 | -0.13 | -5.68 | 133.22 |
| 8 | -0.17 | -7.81 | 125.41 |
| 9 | -0.26 | -11.52 | 113.90 |
| 10 | -0.31 | -13.90 | 100.00 |

Note. Extraction method: factor analysis.

Table 4 *Factor Matrix*

| Item | Factor 1 | Factor 2 |
|------|----------|----------|
| 1 | | |
| 2 | .54 | |
| 3 | .41 | |
| 4 | | |
| 5 | .57 | |
| 6 | .51 | |
| 7 | .54 | |
| 8 | | |
| 9 | | .48 |
| 10 | | .41 |

Note. Blanks on the table indicate loadings < .40.

Table 5

Pearson Correlation Coefficients for Questionnaire Items

| Item | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 1.00 | - | - | - | - | - | - | - | - | - |
| 2 | -.09 | 1.00 | - | - | - | - | - | - | - | - |
| 3 | -.02 | .18* | 1.00 | - | - | - | - | - | - | - |
| 4 | -.11 | .14 | .20* | 1.00 | - | - | - | - | - | - |
| 5 | -.12 | .58* | .25* | .11 | 1.00 | - | - | - | - | - |
| 6 | -.12 | .06 | .22* | .23* | .11 | 1.00 | - | - | - | - |
| 7 | -.05 | .21* | .24* | .08 | .20* | .46* | 1.00 | - | - | - |
| 8 | .13 | .04 | .02 | .04 | .08 | .26* | .24* | 1.00 | - | - |
| 9 | .28* | -.07 | .09 | -.02 | -.11 | .15 | .001 | .01 | 1.00 | - |
| 10 | .25* | .05 | .14 | -.01 | .06 | .16 | .07 | .07 | .29* | 1.00 |

Note. * Significant at 0.05 level (2-tailed)

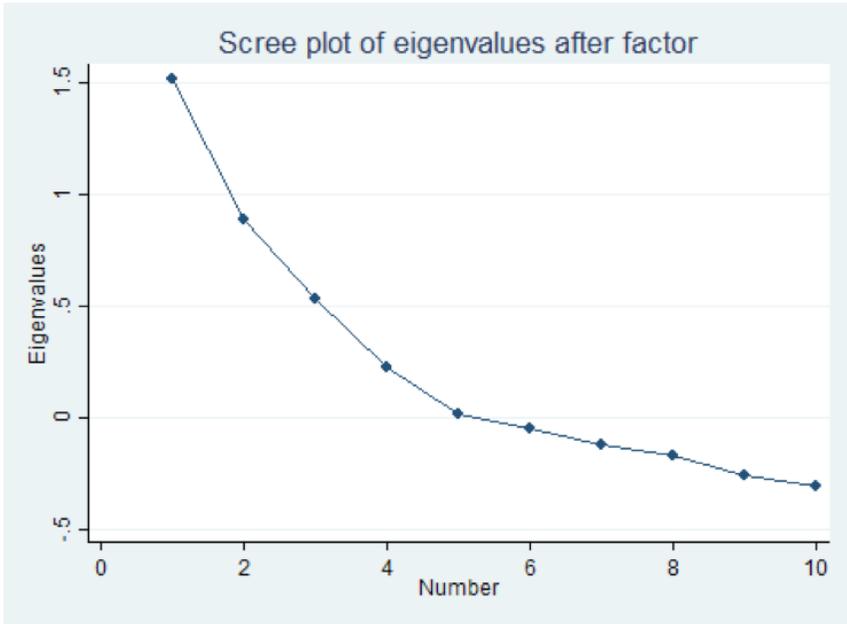


Figure 1. Scree plot showing significant eigenvalues for two components in the AATTR.

AATTR Survey Questions

Gender:

Male Female Other

Ethnicity:

White Black American Indian Asian Native Hawaiian/Pacific Islander
Other

Relationship Status:

Single Dating Marriedw

If married, how many years have you been married?

0-1 2-5 6-10 10+

How old are you? _____

Please mark the number that best indicates how much you disagree or agree with the following statements:

1. I think my spouse spends too much time on his or her phone.

Strongly Disagree Disagree Somewhat Disagree Neither Agree nor
Disagree Somewhat Agree Agree Strongly Agree

2. Expressing love through text messaging is as meaningful as doing it in person.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
3. It is appropriate to argue over text messages.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
4. Being on my phone at the dinner table with my spouse is appropriate.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
5. I am just as happy texting my spouse as speaking with them in person.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
6. I consider watching TV with my spouse to be spending quality time together.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
7. I consider playing video games with my spouse to be spending quality time together.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
8. I would rather spend a weekend night in watching a movie/TV with my spouse than out on a date with my spouse.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
9. I am frustrated with the amount of time we spend watching TV rather than talking.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
10. Television interferes with intimacy.
Strongly Disagree Disagree Somewhat Disagree Neither Agree nor Disagree Somewhat Agree Agree Strongly Agree
11. What do you think this test is measuring?