



## SURVEY AND EXPERIMENTATION: CRITICAL REVIEW OF RESEARCH DESIGN IN SOCIAL SCIENCES

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### ABSTRACT

This comparative critical review study delves into the utilization of survey and experimental research designs within the intricate landscape of social sciences. Through a comprehensive analysis of six articles—three for each methodology—focuses on social media's impact on self-esteem (survey) and news consumption effects (experiment). The study's comparative framework critically evaluates the alignment of research designs with objectives, robustness of methodologies, and inherent strengths and weaknesses. It demonstrates how these methodologies, though distinct, offer complementary tools for comprehending complex social phenomena. Accordingly, the survey-based investigations emphasize the critical understanding of the interplay between social media use and self-esteem, particularly among the youth. Simultaneously, experimental studies unravel factors shaping news consumption patterns, holding significance for news organizations and researchers seeking to enhance audience engagement. Limitations include sample size constraints and potential bias. Nevertheless, through examination of the research designs and specific contexts, the study underscores the importance of methodological choice and its impact on outcomes. It highlights the potential of innovative techniques like the Experience Sampling Method in surveys and the importance of controlled settings in experiments. These insights further enrich the social sciences' understanding of multifaceted societal dynamics.

**Keywords:** design, social sciences, social, sciences

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### INTRODUCTION

The field of social sciences is inherently complex, encompassing a wide spectrum of studies from human behavior, interactions, and societal dynamics (Bozdog, 2023). The choice and implementation of appropriate research designs play a vital role in investigating hypotheses, collecting data, and drawing meaningful conclusions. However, as the landscape of social sciences continues to evolve, it becomes crucial to thoroughly examine the various research designs employed, adjacent to their intended objectives. Among the most commonly used research designs in the field include surveys and experimentation, which are among the two widely utilized methodologies.

Fowler (2013) defines survey research as "the systematic gathering of information from a sample of individuals, using standardized questions, for the purpose of describing some population characteristic". The methodology involves acquiring or collecting information from a sample of individuals through the application of a standardized set of questions or interviews. According to Lau (2017), a survey is a research method of collecting subjective opinions from a sample to be analyzed, representative of the population they belong, while a questionnaire is a data collection method used in the survey approach whereby, respondents respond to an established set of questions. It has evolved to become one of the most widely used research methodologies in the field of social sciences through the years, taking in various forms from phone interviews to questionnaires (W Lawrence Neuman, 2014). It allows the measurement of multiple variables with the same questions and tests multiple hypotheses simultaneously, generating accurate, reliable, and valid data about respondents' previous or current behavior, experiences, or characteristics.

Meanwhile, experimental design involves the manipulation of variables to observe the effect on another dependent variable while controlling other factors that may influence the result (Neuman, 2003). It is a method of data collection, implemented for hypothesis testing under controlled conditions where external factors which may affect the influence of the effect of a studied variable are eliminated to uphold utmost internal validity (Sheppard, n.d.). In other words, to compare an outcome that would have existed in the absence of the said modification. Taking on a quantitative methodology, participants are divided into different groups and exposed to different conditions. This is followed by the measurement of the outcome and results to be compared between the groups to determine the effect of the manipulated variable. In contrast to other social research techniques, experimental research offers the strongest tests of causal relationships with a more narrowed effect that otherwise cannot be drawn a conclusion from. The popularity of experimentation design began gaining traction in social sciences through the field of psychology and later expanded to other fields, thanks to the rise of behaviorism and more quantifiable approaches to scientific societal studies.

Diverging in application, both share strengths and limitations, catering to various demands of research. With that established, this paper will take a deeper look into how these two research methodologies are used in assessing phenomena in different fields of social sciences through a critical review of studies that have utilized them. Three different articles were selected for each design, to compare the differing approaches and contexts in which the research has been conducted using the said methodologies. In the context of survey design, articles investigating the effect of social media use and self-esteem were analyzed while studies revolving around the effect of news on consumers were assessed for experimental design.

## **METHOD**

### **Research Design**

A Comparative Critical Review was employed for this study which aims to examine, analyze, and synthesize existing literature on research designs in social sciences. This methodology involves a comprehensive exploration of six articles, each representing a distinct research design, while specifically focusing on surveys and experiments. The chosen methodology enables a

holistic assessment of the strengths, weaknesses, patterns, and implications associated with these two common research approaches.

The selected articles were assessed using a comparative framework that considered several key aspects. First, the alignment of the research design adjacent to the research question and objectives was critically evaluated. This involved a careful examination of how well the chosen methodology corresponded to the intended goals of the study. This is followed by a thorough assessment of the robustness of the methodology itself, which includes scrutinizing aspects such as the process of sample selection, the methods employed for data collection, and the procedures for data analysis. Next, the strengths and weaknesses inherent to each research design were identified. By delving into these aspects, the analysis aimed to uncover the noteworthy advantages as well as the limitations that were associated with each approach. Furthermore, a critical appraisal of the collective contribution the research made to the advancement of knowledge within the realm of social sciences and their interdisciplinary relevance was undertaken. This involved evaluating how effectively the research findings and insights contributed to the existing body of knowledge and understanding within the field. By juxtaposing different approaches, the study sought to uncover possible interdisciplinary implications and insights that could potentially emerge from such a comparative perspective.

### **Data Collection**

The data collection process involved a thorough search of academic databases primarily Google Scholar, using relevant keywords such as "survey research design," "experimental methodology," and "social sciences." A preliminary screening of articles was conducted based on titles and abstracts, followed by a closer examination of full texts to assess their alignment with the selection criteria. To ease and strategize the review process, a common ground was identified. To do so, articles were filtered and sorted into two categories. Three articles covering a similar phenomenon were selected for each design, to compare the differing approaches and contexts in which the research has been conducted using the said methodologies. In the context of survey design, articles investigating the effect of social media use and self-esteem were analyzed while studies revolving around the effect of news on consumers were assessed for experimental design.

The articles selected under the subject of social media use and self-esteem using survey design are; (i) *The Relations Among Social Media Addiction, Self-Esteem, and Life Satisfaction in University Students*, (ii) *The Effects of Instagram Use, Social Comparison, and Self-Esteem on Social Anxiety: A Survey Study in Singapore*, and (iii) *Social Media Use and Adolescents' Self-Esteem: Heading for a Person-Specific Media Effects Paradigm*. Meanwhile, articles using an experimental design to assess the effect of news on consumers are titled; (i) *Exploring the Effects of Source Credibility and Others' Comments on Online News Evaluation*, (ii) *Effects of Popularity-Based News Recommendations ('Most-Viewed') on Users' Exposure to Online News* and, (iii) *Effect of Fake News Awareness as an Intervention Strategy for Motivating News Verification Behaviour Among Social Media Users in Nigeria: A Quasi-Experimental Research*.

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## **RESULTS AND DISCUSSION**

### **Survey Design**

The three selected studies utilizing survey methodology highlight the importance of understanding the relationship between social media use and self-esteem. The significance of

the findings lies in the notion that self-esteem is a key component of mental and emotional well-being. Low self-esteem can lead to a number of negative consequences, such as depression, anxiety, and social isolation. As reflected in the studies, social comparison, which is the tendency to compare oneself to others, plays a quintessential role in the relationship between social media use and self-esteem. When people use social media, they are constantly exposed to images and stories of others who are seemingly more successful, attractive, and happy. This can lead to feelings of inferiority and inadequacy, which can damage self-esteem. However, despite all three studies employing a survey methodology, the application differed in their approach. One key feature has been the nature of mythological application, whereby both studies by Jiang and Ngien (2020), as well as Hawi & Samaha (2017), issued the survey on a self-administered basis, where the respondents were responsible for completing the questionnaire on their own in accordance with their own experience. This is in contrast to surveys where the researchers record data through observation or where interviews are conducted, the scope of acquiring true responses becomes narrower. Limitations of self-administered surveys include response bias, accuracy, and data quality.

To summarise, Jiang and Ngien (Jiang & Ngien, 2020) and Hawi and Samaha (2017) found that social media use was negatively associated with self-esteem while Valkenburg (2021) deduced an association, but that personality traits moderated the relationship between the two aspects. Meanwhile, social comparison mediated the relationship between Instagram use and social anxiety in Jiang and Ngien's study while self-esteem mediated the relationship between social media addiction and life satisfaction in Hawi and Samaha's. Last but not least, in regard to the relationship between social media use and self-esteem, Jiang and Ngien (2020) and Hawi and Samaha (2017) found the relationship to be stronger for individuals who were more prone to social comparison. Valkenburg et al (Valkenburg et al., 2021) did not find any differences in the relationship between social media use and self-esteem based on personality traits. The studies reviewed provide further evidence of the negative impact of social media use on self-esteem. All three studies found that social media use was associated with lower self-esteem, with negative effects of social media use being more pronounced for people who were more likely to compare themselves to others on the researched platforms.

Firstly, response bias is respondents' tendency to answer questions in a way that is biased or distorted. This is due to social desirability bias, whereby respondents answer questions in a way that they think is socially desirable or that they think will make them look good. This is particularly true in the context of the fields of behavioral sciences and psychology where matters like self-esteem and confidence reflect on respondent's social standing. Thus, poses a sensitive subject of behavior which might be difficult to grasp the true nature of through self-administered and closed questionnaires. Thus, the respondents might have said that they use social media less than they actually do, or that they are less likely to compare themselves to others, believing that these things are associated with social anxiety. For instance, Jiang (2020) measured the variable of social comparison with respondents instructed to rate the degree to which they agree having to compare themselves in social settings with questions like "I often compare myself with others with respect to what I have accomplished in life". Regarding such, respondents may be more likely to say that they do not agree with the statement in order to not want to appear too insecure, which in effect, impacts their response to survey questions.

Secondly, the accuracy of the data collected may be tampered with, given the nature of the questions requiring respondents to recall certain experiences and feelings that they might not be experiencing at the moment of answering the questionnaire. For example, Hawi and Samaha required respondents' ability to remember the information that they were asked about and answer the questions honestly. However, respondents may not be able to remember how often they use social media or be in a state of mind that would accurately represent their self-esteem, life satisfaction, or overall well-being, even if they are not actually feeling that way. Alternatively, Valkenburg and colleagues' approach attempts to counter this issue through the use of the experience sampling method (ESM), whereby participants received notifications to answer questions about their time spent with Instagram, WhatsApp, and Snapchat at random time points within fixed intervals, send to them automatically on their mobile phones. This method minimizes the impact of addressing the issue of timeliness, allowing real-time and accurate data to be collected. ESM addresses issues of typical surveys and allows social scientists to study respondents' emotional, behavioral, and cognitive changes throughout the day. This allowed more strategic measuring of social media usage and its consecutive impact on the cognitive state of respondents in Valkenburg et al's study compared to the other two studies. It enabled them to collect data on participants' social media use, self-esteem, and mood in the moment, over a longer period of time. This is a matter of relevance as the researchers were interested in understanding how social media use changes over time and how it affects mood at the moment.

Next, the quality of the data may have deteriorated from extreme responses where respondents showcase the tendency to answer questions in extreme ways, such as always choosing the most positive or negative option. In the study by Hawi and Samaha, extreme response bias could have affected the results in a number of ways. For example, respondents who are addicted to social media may be more likely to choose the most negative options when asked about the negative effects of social media use. This could lead to an overestimate of the negative effects of social media use. On the other hand, respondents who are not addicted to social media may be more likely to choose the most positive options when asked about the positive effects of social media use. This could lead to an underestimate of the positive effects of social media use. This could be countered by the use of a variety of question types can help to reduce extreme response bias. Most of the measurements used in the study have been closed-ended instead, a combination of open-ended, closed-ended, and scaled questions can help to get a more complete picture of the respondents' experiences.

The findings contribute to the growing body of research on the effects of social media on well-being and behavioral changes among users in fields of social sciences such as communication, psychology, etc. They highlight the importance of understanding the effect social media use has on user's well-being in the form of self-esteem. As reflected in the studies, social comparison, which is the tendency to compare oneself to others, plays a role in the relationship between social media use and self-esteem. Hence, the findings of these studies are of great significance, providing further evidence of the impact of social media use on self-esteem, and assisting in the potential development of interventions to help people reduce their social media use and improve their self-esteem.

### **Experimental Design**

For the studies employing experimental design, there are variations in the approach taken to address the respective research objectives in question. The experimental methodology used

in all three studies is generally suitable for the research questions that they are addressing. The articles provide evidence that the factors that influence how people evaluate and consume news online are complex and multifaceted. Source credibility, popularity-based recommendations, and fake news awareness are all important factors that can influence how people interact with news online.

Kim (2015) examined the role of source credibility and others' comments to assess the way audiences evaluate news through experimental manipulation of the source of the news and comments under the stories. The primary research questions have been to assess whether comments on online news articles mitigated the degree to which sources credibility affected news evaluation among the respondents. The corresponding factorial experimentations found no statistical significance in the "interaction effects of source credibility and comments on participants' news evaluation". In other words, the comments did not affect the degree of the source credibility on news evaluation. This has been an interesting piece of finding, which was inconsistent with the prediction made by the researchers. Kim associated the unexpected results with the implications of the shift towards online news consumption in the news industry. In the online context, the source's significance appears diminished compared to traditional news with users may not recall the news organization. While there is a certain validity to this, it doesn't mean that news organizations should not put in the effort to build a credible image. News organizations should still focus on building credibility with their audiences by providing accurate and unbiased reporting as well as being transparent about their sources and methods. It is more important than ever for news organizations to be clear about where they get their news and this could be done by providing links to the original sources of their stories, for instance.

On the flip side, the results indicated that people are more likely to be influenced by the comments of others on news stories. This is significant because it suggests that comment-driven social media platforms can play a role in shaping how people evaluate and consume news. News organizations should be aware of the potential influence of the comment section and other users' comments on news evaluation online. I believe it brings about the important discussion of misinformation prompted by the interactive nature of the online medium. The online environment is a breeding ground for misinformation and news organizations need to be proactive in identifying and debunking false news stories. It should prompt news organizations to be more vigilant about the spread of misinformation. They can do this by monitoring social media for misinformation and by providing fact-checking information to their users. The factor of misinformation was not part of Kim's study, but future research can take it as a factor influencing news evaluation.

Meanwhile, Yang (2016) studied the influence of the "most-viewed" recommendation feature and exposure duration on news selections among South Korean students, issuing three main research questions. First, what are the reasons for news story selection do users regard as important? Which identified story salience, individual interest, social importance, and emotional appeal among the important reasons for story selection online. Correspondingly, the next research question addressed the presence of recommendations on users' choices of which news stories they read. As hypothesized, those provided with recommendations accessed the most viewed stories more frequently than those who were not exposed. The news industry can use these findings to better understand the needs of their audiences and to produce news stories that are more likely to be read. For example, news organizations can focus on producing news

stories that are relevant to their audience's interests, that are important to their social groups, and that evoke emotions in their audiences.

Next, the effect of most-viewed recommendations on users' overall news exposure. The result interpreted that the "Most-Viewed" feature saved the time spent looking for the news, hence raising the exposure time but there was no difference in the number of articles users were exposed to. Thus, the effect of popularity-based recommendations was stronger for news stories that were more novel and unexpected. This could have implications for the manner the news industry approaches its online platform design. This includes incorporating a "Most-Viewed" feature to promote popular news stories. This will help to ensure that users are exposed to the most popular news stories, even if they are not actively searching for them. This could also be an important discovery for marketers and advertisers alike in understanding the significance of the recommendation feature in approaching their campaigns in newspapers. The advertising industry is also constantly evolving, and advertisers are always looking for new ways to reach their target audiences. The "Most-Viewed" feature is a valuable tool that advertisers can use to promote their products or services to users who are more likely to be interested in them. This can help to increase the effectiveness of advertising campaigns.

The last study by Apuke (2023), assessed the impact of news awareness intervention strategies in promoting news verification among Nigerian social media users. A quasi-experiment theoretical approach was taken to develop the research model and establish hypotheses. The overall research question addressed in the study has been the impact of fake news awareness intervention on the improvement of news verification behavior among users. The acquired results concluded that those who were exposed to the awareness campaigns reported great attitudes towards news verification and better self-efficacy towards news verification with an elevated concern over their social media reputation. As per the approach taken, both the treatment and control groups scored low on their attitude toward news verification before and after the intervention was introduced. In turn, post-test results acquired on the treatment group identified a more positive attitude towards news verification.

Therefore, the results indicate that fake news awareness can be an effective intervention for motivating news verification behavior, but that it is more effective when it is combined with other strategies, such as training in media literacy. This suggests that fake news awareness can be an effective intervention for motivating news verification behavior. This is significant because it suggests that there are ways to help people be more critical of the news that they consume. News organizations should educate their users about the dangers of fake news, and they should provide tools and resources that can help people verify the accuracy of news stories.

Comparatively, survey and experimental methodologies offer unique insights and challenges as discussed within the realm of social science research. The survey approach, while widely employed and validated, encounters privacy issues and potential bias. In contrast, experimental designs wrestle with the trade-off between controlled settings and real-world applicability. Both emphasize the need for robust methodology, whether by adapting to changing technological landscapes, maximizing randomization techniques, or addressing ecological validity. As the comparative review underscores, these methodologies are not mutually exclusive, but rather, offer complementary tools for understanding complex social phenomena. In summation, this synthesis of survey and experimental methodologies offers insights that converge and diverge across domains. While each methodology allows exploration of complexity

and potential in unraveling the complexity of societal phenomena, they bear their own strengths and limitations.

The survey research design undertaken across all three studies utilized Rosenberg's Self-Esteem Scale (RSES), which is one of the most widely used survey methods for assessing overall levels of self-esteem. The scale assesses global self-esteem levels and is used to measure respondents' positive and negative feelings of self-worth on a Likert scale of agreement. While the scale as a part of the survey design is highly validated across different cultures and contexts, its suitability of being a self-administered aspect of the method given the personal nature of the subject of self-worth is something to be considered. There's a potential scope of undermining or overemphasizing feelings, blown out of proportion likely to take place. In comparison, the experimentation design undertaken provides a greater room to adapt ecological matters by taking into account respondents' backgrounds more precisely in the data collection stage. However, as per empirically driven laboratory experiments of such nature, there are two sets of limitations that may negatively affect the external validity of the results. This is in the form of the overall narrowing of sample representativeness and the artificial nature of the laboratory environment (Jackson & Cox, 2013). For instance, the implication of Kim's pre-selected set of supporting and opposing comments. Here, there is a substantial degree of research bias, as only properly defined comments slanted positively and negatively were selected. Whereas, realistically the true nature of comments is often more ambiguous in nature, inevitably impacting the ecological validity and in turn reader evaluations of the news in question. According to Nikolopoulou (2022), ecological validity measures the generalizability of the findings with respect to the environment or setting in which the study was conducted. In other words, it is a subtype of external validity thus, a high ecological validity allows greater generalizability to that of real-life context.

Interestingly, Valkenburg et al's non-traditional survey research approach integrates an Experience Sampling Method (ESM) or daily diary method could be a great approach to curd limitations of both typical survey and experimentation. As opposed to typical online surveys, the research was conducted over a three-week period where respondents completed, daily, six 2-minute surveys on the basis of notifications on their mobile phones. Despite possible concerns over participant compliance and technical barriers that lead to the surveys not reaching participants pose as an issue, the technique enables the collection of data on individuals' experiences and behaviors in their natural environments, in real-time or close to real-time with the use of electronic devices such as smartphones (Verhagen et al., 2016). This is particularly suitable for acquiring real-time, true, and accurate data, measuring social media use among the respondents as opposed to the self-administered or manually filled surveys as per researcher observation. This novel approach may be the future for studies assessing similar phenomena or behavioral research on media. Data collected on people's experiences repeatedly over time at random intervals allows researchers to capture people's thoughts, feelings, and behaviors in the moment, rather than relying on their retrospective recall. This particular approach could be infused into experimental studies to improve and overcome the constraints that follow.

In the implementation of experimental design, the key is to be relatively simplistic in its implementation process, away from being overly complex in its nature (Jackson & Cox, 2013). This to a degree infers to the randomization process where subjects are randomly assigned to the different groups or treatments of the experiment. According to Palys & Atchison (2014), the

random assignment technique addresses the assumption of “pre-test equivalence”, whereby the experimental and control group are made sure to be equivalent in all aspects before the manipulation of the independent variable (Sheppard, n.d.). As evident in all three studies including Apuke et al’s quasi-experimental design, there has been a degree of randomization in the implementation of the design where a power analysis with the use of the statistical software G\*power was used to randomize the sample. It also permits the application of probability theory and the true effect of the end outcome (Suresh, 2011). Hence, preventing the appearance of bias in sample selection, and allowing for validated comparisons between tested groups.

As an extension of the point above, the design also involves the measurements of the variables, particularly in experimentation design with the measured outcome in the form of dependent variables. For all three experimental studies, some variation of survey methodologies was implemented within the studies, to quantify the dependent variable data. Whereby, a combination of self-reported approach as well as unobtrusive observation was undertaken. Unobtrusive observation is typically employed to ensure that the presence of the researcher will not change the situation under observation and it is more accurate in acquiring data as opposed to being subjects questioned directly (Hansen & Paul, 2015). In the context of Yang’s study, the use of the unobtrusive method proved to be more potent as the primary objective has been to assess the influence of the “Most-Viewed” feature on users’ news exposure online. Yang’s approach to unobtrusive observation was undertaken with the use of a log data program that automatically subjects’ exposure time and the selection path taken in accessing and reading the news story. This allowed examination of the manipulated variables of website design where subjects were prompted to rate their perception towards the stimuli introduced and later manipulated.

Nevertheless, all the research is timely and significant, which could help social scientists create interventions to address social media-mediated psychological issues like self-esteem as well as mass media researchers taking into account factors influencing audience consumption and evaluation of news online. The findings of the three survey studies highlight the importance of understanding the relationship between social media use and self-esteem. This is particularly important for young people, who are heavy users of social media. Other parties such as parents, educators, and policymakers should be aware of the potential negative impact of social media on self-esteem and should work to help young people develop healthy relationships with social media. Adjacently, the experimental studies provide evidence that source credibility, popularity-based recommendations, and fake news awareness are all important factors that can influence how people interact with news online. The findings may be a guide about a number of matters that news organizations, social media platforms, and researchers can do to help people find and consume accurate and credible news.

## **CONCLUSION**

In the exploration of the two distinct methodologies – survey and experimental research designs – across separate domains, valuable insights have been unveiled that shed light on multifaceted phenomena. These divergent approaches underscore the flexibility and diversity that exist within the realm of research design, as evidenced by the examination of the impact of social media use on self-esteem and the assessment of the relationship between news elements and audience responses. Despite employing the same survey design for assessing a similar

phenomenon, the studies demonstrate how methodological choices can yield diverse outcomes. This is evident in the nuanced differences in design, stimuli, research questions, and manipulations across the studies. The careful selection of sampling methods, frameworks, and variables resonates with distinct research inquiries, aligning with specific objectives and testing hypotheses unique to each study. A critical evaluation of the compatibility of these methodologies with the context and studied relationships is imperative. Collectively, the triad of studies provides insights into the determinants shaping news evaluation and consumption patterns. Although limitations persist, such variations contribute to the enrichment of the literature and signal potential avenues for enhancement in different contextual settings. The recognition of these constraints, coupled with the capturing of a range of results, emphasizes the pivotal importance of examining the intricate interplay between the subjects studied. However, these studies are not devoid of limitations. Yet, it remains relevant to acknowledge the relatively modest sample sizes and specific participant populations in all studies, signifying the need for broader and more diverse investigations to fully elucidate the complex relationships. Each relies on a relatively limited sample size, potentially constraining the applicability of findings to broader contexts. Additionally, their execution within controlled laboratory settings diverges from real-world news consumption dynamics, potentially tempering the external validity of the outcomes. Lastly, the reliance on self-report measures introduces the possibility of bias, necessitating caution in interpreting findings. Nevertheless, despite these constraints, the three studies extend meaningful insights into the determinants that mold news evaluation and consumption. These insights hold the potential to inform interventions aimed at cultivating a more discerning and critical consumer base for news consumption.

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