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Models of Privacy and Disclosure on Social Networking Sites: A Systematic Literature Review

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Abstract: Social networking sites (SNSs) are used widely, raising new issues in terms of privacy and disclosure. Although users are often concerned about their privacy, they often publish information on social networking sites willingly. Due to the growing number of users of social networking sites, substantial research has been conducted in recent years. In this paper, we conducted a systematic review of papers that included structural equations models (SEM), or other statistical models with privacy and disclosure constructs. A total of 98 such papers were found and included in the analysis. In this paper, we evaluated the presentation of results of the models containing privacy and disclosure constructs. We carried out an analysis of which background theories are used in such studies and have also found that the studies have not been carried out worldwide. Extending the research to other countries could help with better user awareness of the privacy and self-disclosure of users on SNSs.

Keywords: structural equations modeling; social networking sites; privacy; disclosure

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1. Introduction

Nowadays, people use multiple social networking sites (SNSs) and other digital technologies, which have presented an important communication form in recent years, and are also, therefore, of great interest for researchers. SNSs are networked communication platforms where users publish their profiles that include user-supplied content, content provided by other users and data provided by the system; platforms where users can connect with other users; and a platform where users interact with user-generated content on the SNSs [1]. Facebook has been the most popular social network since 2009, with 2.89 billion monthly active users, and it is estimated that, in 2022, SNSs will reach 3.96 billion users [2]. Facebook is just one example of SNSs; however, in most research, it is used as a platform that researchers take as an example while asking users different questions regarding their use of SNSs.

User-generated content raises privacy issues, and questions on what effect privacy issues have on the disclosure of users on SNSs. Privacy is a personal boundary regulation process that regulates private information, and, depending on the context and disclosure of the information is defined as the act of revealing personal information to others [3–5]. The number of social networking users is rising, and although users are often concerned about their privacy, they often publish information on social networking sites willingly, which is also called a privacy paradox [6].

In this paper, we have searched for publications with statistical models containing both privacy and disclosure constructs. Most of the statistical models were structural equations models (SEM). The purpose of SEM is to assess model fit and test the hypotheses of the research [7]. SEM models are used in different areas, including financial operations, vaccination prediction and similar [8,9].

The motivation to start this study was to present a systematic review and analysis of state-of-the-art research in the field of privacy and disclosure on SNSs. In recent years,

several studies researching the topic have been published, and the aim of this paper is also to indicate the missing links in the topic, and to show successfully presented research on this topic. This review could help future researchers to establish new models based on the existing models, and also give an overview of where the current studies were carried out and what their main findings were. This paper also presents measurement parameters for the presentation of models, and this could help with a better presentation of the research in this topic.

The systematic review only includes papers or publications containing privacy and disclosure constructs in the statistical models used. We have excluded review type research, discussions and model proposals without confirmation of the models presented. Researchers building new models with privacy and disclosure constructs on SNSs or other technologies could get a better overview of the research that has already been conducted on this topic and the missing research in the field.

The contribution of this study is to present state-of-the-art research where statistical models were formed in regard to SNSs users, their views of privacy and disclosure. Further on, a list of measurement parameters of the papers will be presented, and could be used by researchers as a checklist on what they should report in papers with statistical models.

The rest of the paper is organized as follows. In Section 2, we have reviewed existing literature and presented the background of SNSs, privacy and disclosure. In Section 3, we have defined the methodology for the systematic review, research questions, data sources, evaluation process, study criteria, data collection and literature measurement parameters. In Section 4, we have presented a bibliometric overview of the 98 selected publications, and carried out the analysis of the publications and the parameters of the papers included in the presentation of the models. A discussion of the results and the conclusion is presented in Section 5. In Appendix A, there is a full bibliometric overview of the 98 selected papers, and in Appendix B there is a table with scores for the measurement parameters of the models presented in the papers.

2. Background

This section discusses the fundamentals of privacy and disclosure in SNSs and the fundamentals of structural equations modeling (SEM), to help understand the rest of this paper. There were some systematic literature reviews done on this topic, but none of them include privacy and disclosure constructs in models where SNSs users were used as respondents to a questionnaire. In one study, the privacy paradox was explained by a systematic literature review, and other studies have focused their reviews only on privacy or disclosure constructs separately [10–15].

2.1. Privacy and Disclosure on SNSs

Privacy and disclosure on SNSs have been a topic of interest in many previous studies. Privacy presents an option where a person chooses the information they share and with whom they share it by using privacy controls on the SNSs. This is also similar to offline conversations in communication privacy management theory [16,17]. Many studies use different privacy constructs in their models; in one study there have been significant effects of information collection, profile control and general privacy concerns on privacy concerns and willingness to share users' profiles with Facebook apps [18]. In regard to privacy control, some studies show that users tend to close their profiles on Facebook if their friends also have their profiles closed [19]. The privacy paradox shows that users often have high privacy concerns, but do not put any effort into making their information private [15]. Privacy constructs are often also connected to risk, where a user evaluates the risk of posting their personal information on the SNSs [20,21]. Trust is also a construct often connected to privacy, and has an impact on the user's disclosure [22].

There are different disclosure factors in research connected to SNSs; some of them only involve self-disclosure, others also involve general information disclosure or intention to disclose information on the SNSs. Privacy constructs often have an effect on different

disclosure behaviors of users on SNSs. Studies often confirm the effect of privacy concerns on self-disclosure [23,24]. Regarding information disclosure on Facebook, parents' educational influence and frequent use of SNS motivate users to be more concerned about their privacy and to disclose less information [25]. Other constructs that have some impact on the disclosure of information on SNSs are the time being spent on SNSs, the number of friends, perceived risks and benefits, the need for popularity and personality factors [26–28]. The effects of privacy concerns, trusting beliefs and information sensitivity on information disclosure were confirmed in a study on Facebook users [29]. Moreover, other studies found a significant effect of privacy constructs on self-disclosure behaviors [30–32]. Often, data mining techniques are also used for SNSs' network analysis for discovering patterns in users, and these techniques also bring a better understanding of users' behavior on SNSs [33,34].

In research, SEM or regression models are usually based on previous theories, and the theories most often referred to will be presented in the next section.

2.2. Theories on Which the Models for Privacy and Disclosure Are Based

SEM and regression models are usually built based on previously established theories. There are many theories that could be a baseline for creating new SEM or regression models. One of the most used theories is privacy calculus, where it is expected that the users' anticipated benefits and risks have an effect on sharing information on social networking sites, meaning that the users will act accordingly to what they view as costs and benefits of their information disclosure [35–37].

Another highly used theory is communication privacy management (CPM) theory, which defines privacy as the process of opening and closing boundaries to others [17]. First, if a user shares information with others, they extend the co-ownership of that information to other persons with whom they are sharing the information. Next, in the CPM theory, the control of private information is given to an individual, and the individual decides on revealing or concealing that information. Furthermore, boundary turbulence, according to the CPM theory, can occur when information that should be kept private is shared with others without the permission of the owner. This theory aligns well with SNSs, where users can control with whom they share their information.

A technology acceptance model (TAM) is also often used with SNSs. In TAM, external variables have an effect on perceived usefulness and perceived ease of use, and the latter also has an effect on perceived usefulness. Next, perceived usefulness and perceived ease of use have an effect on the attitude toward using technologies, and the attitude has an effect on the behavioral intention to use technology. The latter also has an effect on actual systems use. Although the TAM theory does not predict any privacy constructs, they are often used in the first part as external variables affecting the rest of the constructs in the proposed model. A behavioral intention to use technology is highly connected to information disclosure on SNSs [38,39].

The theory of reasoned action (TRA) proposes the effect of attitude and subjective norm on behavioral intention, and the effect of behavioral intention on actual behavior [40]. This theory separates the belief of what a person believes others would say if they share some information and the motivation of a person to share information. The theory of planned behavior (TPB) is a theory developed a bit later by one of the authors of TRA [41]. TPB uses the same model as in TRA, adding a new construct, perceived behavioral control, which has an effect on behavioral intention and behavior. The new construct presents the opportunities for performing a given behavior, where the individual with more opportunities acts so that their behavioral intention and behavior on the used technology is higher.

The above are the most commonly used theories in newly created models connected to privacy, disclosure and SNSs. There are also other theories, which could be used for creating models, but are not used so often.

2.3. Presentation of Model Results

It is crucial that scientific papers present clear results, so that they can be repeated by other researchers. When building new models and testing the relationships between proposed constructs, it is important that the background of the study is explained very clearly. That is why we looked to see if the papers have information on the constructs used in the model—this is also referred to as content validity. Next, it is important that we do a pre-test of the study on a smaller sample to test the validity of the results. Most often the models involving constructs use quantitative measures, and it is important that the reader of such a paper is informed on what kind of scale they used. Often, they use a 5-point or 7-point Likert scale to get the results for each item in the construct. Normally, people collaborating in the survey see a statement, and they have to evaluate it on a 5- or 7-point scale, for example, 1 meaning "I do not agree" and 5 meaning "I fully agree".

It is also important to know when and where the study to test the model was carried out, so in the presentation of model results, a year and preferably also the month and days of the survey should be presented, as well as the country where the survey was distributed. Next, the authors of papers with models should present their sample frame, which should include information on who was invited to participate in their study. Next, we looked for an explanation if they used random sampling or any other method for sampling. If possible, the response rate should be over 20%, where it is possible to measure this (depending on the sampling method).

In the presentation of the model's results, we were also looking for the number of participants in the survey, to evaluate if the results could be generated to a broader population. Next, it is also important to know from what age range the participants have collaborated in the survey. If, for example, the survey was sent to college students, it can possibly be generalized to a college population, but not to the whole population. Lastly, it is important that the researchers present the gender ratio of participants collaborating in the survey, again to see if this can be generalized to the general public. In the next section, we will present some measures important for presenting the results of structural equations modeling.

2.4. Structural Equations Modeling (SEM)

Quantitative studies can be analyzed in several ways. There are different ways of testing the hypothesis, but the mostly used method for building models for behavior in SNSs is structural equations modeling. There are a few steps that need to be carried out beforehand to prepare the data and analyze it [42]. To understand the steps better, we will present some basic descriptions of measures that should be published in papers presenting their models.

The authors of papers containing SEM should present what items they used to test each construct. Normally, each construct should have more items for testing the whole model. Next, it is important that the convergent validity of items is presented by measuring Cronbach's alpha, composite reliability and average variance extracted measures. Cronbach's alpha is a measure that tests to what extent multiple items for a construct belong together. Cronbach's alpha coefficient ranges from 0 to 1, and the acceptable reliability coefficient is above 0.7; in some research, authors also discuss that a coefficient above 0.6 is sufficient [43,44]. Cronbach's alpha is calculated for each construct in the model. Composite reliability is a measure of the internal consistency required in internally correlated latent variables, and its measure should be greater than 0.7 [45]. The average variance extracted measures the amount of variance captured by a construct in relation to the amount of variance due to measurement error, and it should be greater than 0.5 [46,47].

In the next step, authors of papers should present construct validity with exploratory factor analysis, carried out with factor loadings, where some items could be excluded before continuing to confirmatory factor analysis [48].

Next, confirmatory methods for the proposed model should be presented in papers with model fit to validate the proposed model. Most often presented are the chi-square statistic (C_{min}/df), the normed fit index (NFI), the goodness-of-fit (GFI), the comparative fit

index (CFI) and the root mean square error of approximation (RMSEA). The recommended values for these model fits are below 0.3 for chi-square, above 0.9 for NFI, GFI and CFI, and below 0.1 for RMSEA [46,49,50].

In regression or SEM models, the path coefficient analysis and the results of the t-statistic are very important to understand the paths between different constructs. The strength and significance of each path are normally evaluated by the standardized coefficient (β), and by a t value higher than 2.0 or lower than −2.0 [51]. It is important that the authors present these results in the paper, and it is also important how they form the results. If the results are presented as a picture, a reader can see some of the path coefficient results from it right away. If they are presented in a table, the results are readable, but it takes more time to consolidate the results. Some authors also use explanations of path coefficients in text without any supporting materials such as pictures or tables. It is usually quite time consuming to find the results needed from such a form of presentation.

Next to path analysis, the coefficient of determination or variance explained (R^2) for the dependent variable also presents the degree to which the percentage of variance in the dependent variable is accounted for by the independent variables that have an effect on it [42]. The higher this percentage is, the more variance is explained in the specific dependent variable, and the fewer outer independent variables could have an effect on it.

At the end of each paper, it is important that internal validity is discussed—the model results should be compared to existing literature and explained.

3. Methodology

First, we defined the methodology to be used. The objective of our study was to carry out a systematic review of all existing models used on social networking sites with users regarding their views of privacy and disclosure.

3.1. Research Questions

In this study, we intend to answer the following research questions:

- RQ1: To what extent is privacy and disclosure behavior researched in social networking sites?
- RQ2: Which are the most commonly used background theories for the models containing privacy and disclosure constructs?
- RQ3: Do the SEM or regression models on privacy and disclosure include recommended measures for explaining the results of the model?

3.2. Data Sources

The systematic review included the following 6 electronic databases:

- Clarivate Analytics—Web of Science (WoS),
- Elsevier ScienceDirect (SD),
- Springer SpringerLink (Springer),
- Google Scholar,
- IEEE Xplore (IEEE),
- ACM Digital Library (ACM).

The review was conducted by three reviewers, and the search in all databases returned 35,588 results. Due to a lack of advanced search options in Google Scholar and SpringerLink, some results were not related to our search. Therefore, we have only included the 500 most relevant papers from Google Scholar and the 400 most relevant from SpringerLink in our research.

The query strings defined below have been used to search for relevant publications.

The search strings were created by using the research domain and the research questions as a guide.

We used the following search terms:

((“SNS” OR “SNSs” OR “OSN” OR “OSNs” OR “online social networking” OR “online social networks” OR “social networking sites” OR “social networking site” OR “Facebook”) AND

(privacy) AND

("disclosure" OR "self-disclosure" OR "Willingness to provide information" OR "information sharing") AND

("model" OR "path" OR "SEM" OR "coefficient" OR "coefficients" OR "impact" OR "PLS"))

The search in the online digital libraries was conducted in August 2021. The search query was made as broad as possible, to consider as many results as possible related to the research questions posed in this systematic review. The procedure used for searching and the selection of publications are summarized in Figure 1. The summary of the results returned for each database search is presented in Table 1.

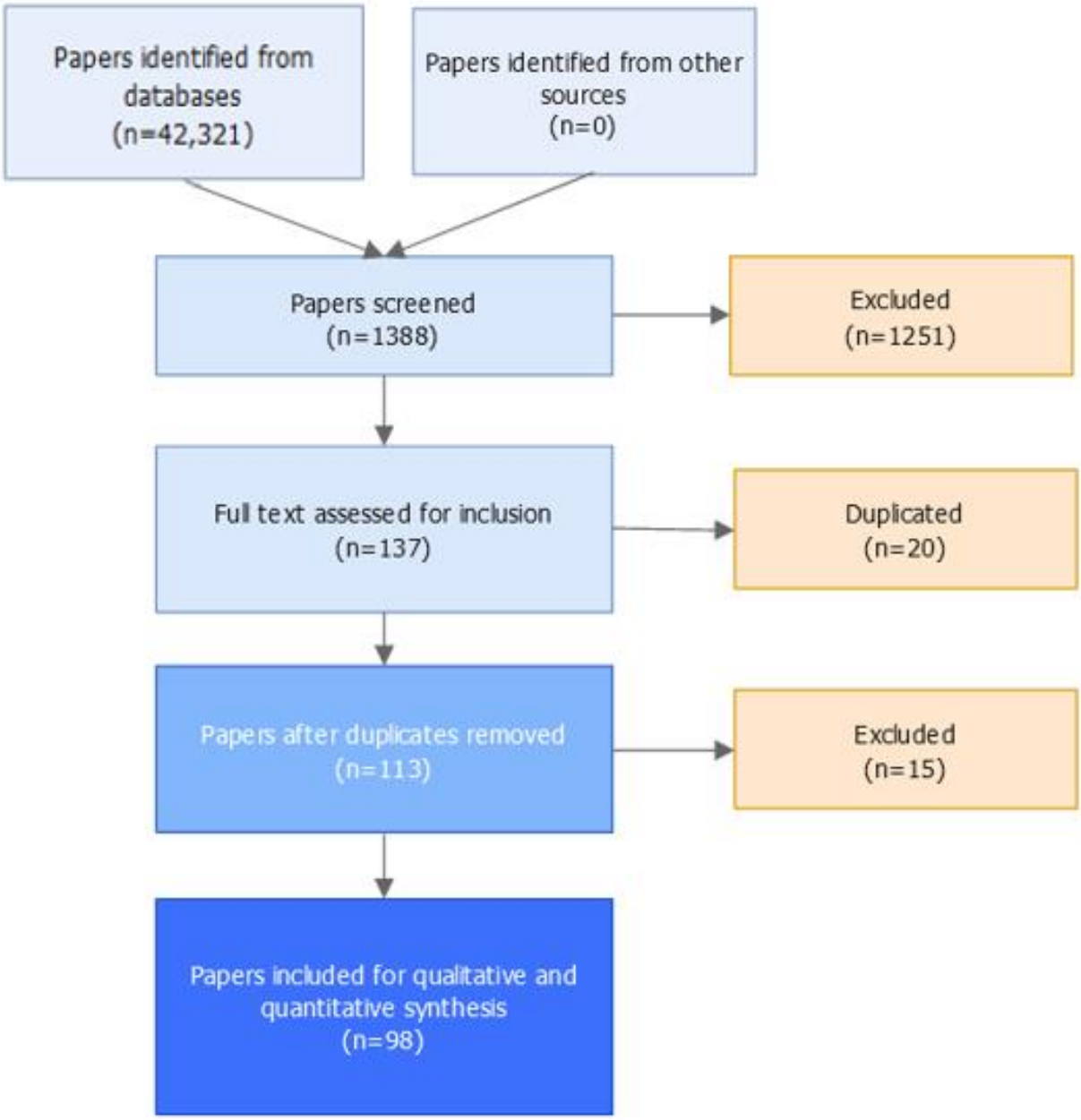

Figure 1. Flow diagram of the search.

Table 1. Summary of search results.

	Springer	IEEE	SD	ACM	WoS	Google Scholar	Total
Search done in	All text	Metadata Only	Title, abstract or keywords	Title, author keywords, abstract	Title/Topic	Relevance	
Search results (Search done on)	6733 (400)	66	47	20	355	35,100 (500)	42,321 (1388)
Number of suitable results for inclusion after screening	20	6	20	2	76	13	137
Percentage of results used for detailed screening	5.00%	9.09%	42.55%	10.00%	21.41%	2.60%	9.87%

3.2.1. Selection of Studies

The selection process started with 1388 publications gathered from online digital libraries. The publications were then included in the systematic review if they fulfilled the selection criteria. The selection process was then divided into four stages:

- Stage 1: The search results were filtered according to the inclusion and exclusion criteria. We limited our systematic review to models, done on social networking sites' users regarding their views of privacy and disclosure. We included studies from 2006 to 2022. The reason for choosing the year 2006 as the beginning of the range is the introduction of modern social networking sites to the general public, such as Facebook in 2006 [52]. The process was reviewed by three researchers.
- Stage 2: We read paper titles and abstracts, and included in the further screening only papers with SEM or regression models done on social networking sites that included privacy and disclosure factors. In cases where relevancy could not be determined from the title and abstract, we studied the entire paper to make sure that all relevant papers were included. We excluded 1251 results.
- Stage 3: We removed the duplicates from 6 different databases. There were 137 publications found, and after removing the duplicates, 113 publications were left for the next phase.
- Stage 4: A thorough reading was used to analyze the remaining results in detail. The analyzed papers had to be related closely to the research topic and questions. The remaining results also had to include social networking sites, SEM models or regression models and privacy and disclosure factors. Some results were excluded, as the models did not include social networking site analysis, or included only one of the factors needed. Altogether, 15 results were excluded.

A total of 98 publications were included in the systematic review. The selection procedure was thorough, in order to ensure that only studies were examined that were relevant and of high quality. The CASP Systematic Review Checklist [53], which addresses the assessment of research in systematic reviews, was used to manage the process of acquiring, selecting, and reviewing data for the review.

3.3. Evaluation Process

In the evaluation process, we had several stages for including the papers into the final selection:

1. Range: We extracted the relevant papers through a comprehensive search in databases and evaluated the studies based on publication date (between 2006 and 2022) and originality (we included only original research).

2. Relevance: The title and abstract were scanned for relevance to the defined objective of including a model with privacy and disclosure constructs and SNSs users.
3. Inclusion: Studies were assessed based on the stage 1 (see Section 3.2.1) rules of selection of studies.
4. Thorough examination: We conducted a full reading of the papers to see if the studies fit the defined objective, and excluded the papers that did not fit the objective.
5. Data: Studies from the selection were analyzed, and we extracted data related to the objective and research questions from each paper.
6. Quality assessment: Studies were assessed thoroughly using the 23 criteria.

3.4. Study Criteria

We set the inclusion and exclusion criteria to form the final selection of the papers. In the inclusion criteria, the following points were checked:

1. Original research study.
2. Publication on the topic of social networking sites, privacy and disclosure.
3. The publication includes a sufficient explanation of the research findings.
4. Publication years range between 2006 and 2022.

We set the inclusion and exclusion criteria to form the final selection of the papers. For the exclusion criteria, the papers with the following characteristics were excluded:

5. Secondary research, review papers and other non-relevant publications.
6. Publications presenting ideas and no results (e.g., research designs).
7. Publications presenting only privacy or only disclosure on models based on users of social networking sites.
8. Publications in any other language but English.

3.5. Data Collection

After the final 98 papers were selected, we extracted data from those papers. First, we extracted the title, authors, year of publication, publication type, publisher and number of citations on Google Scholar. After collecting this information, each paper was analyzed thoroughly, and we extracted data connected to SEM models and regression models from it.

First, we collected the information on which theory the model in the papers was based. Then, we collected data if the factors in the model were discussed. Next, we looked for information if the authors of the papers wrote that they had conducted a pre-test of the questionnaire, and in what form the questionnaire was distributed. We also checked if the authors explained the scale used for validation, and if they have published the year of research. Later, we examined the papers for specification of the sample frame, meaning if the researchers explained who was invited to participate in their survey. We also looked for information on which SNSs platform the questions were referring to, and what kind of sampling the authors used (e.g., convenience, random). Next, we also looked for information whether the response rate was over 20%. Following this, we collected the information on the country of research, the number of participants in the study, the age span of participants and their gender ratio.

Next, we collected data on the model that was presented in the paper. First, we collected the information on the type of model (SEM, PLS-SEM, regression, . . .), if the authors used multi-items for testing the model, the number of constructs and number of items in the SEM model. We also collected information if the authors of the selected papers had presented convergent validity by presenting the Cronbach's alpha results, composite reliability and average variance extracted results. Further on, we searched in all papers if construct validity and the results of confirmatory methods were presented. In the latter, we extracted the results of the χ^2, NFI, GFI, CFI and RMSEA tests. Next, we collected the information on what kind of form the results of the model were presented in, and if there was internal validity or a discussion at the end of the paper. We also collected coefficient of

determination (R^2) results for privacy and disclosure factors, and all the path coefficients for predictor or consequence factors of privacy or disclosure factor.

3.6. Literature Quality

We assessed the literature quality by observing the measurement parameters based on the criteria defined in Table 2. The parameters for measuring quality were based on the review of the papers involving SEM models, and some papers on how to report the results of SEM and regression models [54,55]. We collected the data from each paper, and assigned the number of points each paper got considering the full paper content. The criteria were designed to measure the quality of each paper by examining if the paper presented all the measures needed for SEM or regression models. All 98 publications were assessed by three reviewers.

Table 2. Measurement parameters.

	Parameters		Possible Points Received
1.	Theory presented		Yes—1.00, No—0.00
2.	Content validity		Yes—1.00, No—0.00
3.	Pre-test		Yes—1.00, No—0.00
4.	Scale explained		Yes—1.00, No—0.00
5.	Year of research		Yes—1.00, No—0.00
6.	Sample frame (who was invited)		Yes—1.00, No—0.00
7.	Random sampling		Yes—1.00, No—0.00
8.	Response rate over 20%		Yes—1.00, No—0.00
9.	Country of research		Yes—1.00, No—0.00
10.	Number of participants who responded to the survey		Number of participants
11.	Age of participants		Yes—1.00, No—0.00
12.	Gender ratio of participants		Yes—1.00, No—0.00
13.	Multi-item variables		Yes—1.00, No—0.00
14.	Average number of items per variable		Number of items per variable
15.	Convergent validity	Cronbach's alpha	Yes—1.00, No—0.00
16.		Composite reliability	Yes—1.00, No—0.00
17.		Average variance extracted	Yes—1.00, No—0.00
18.	Construct validity		Yes—1.00, No—0.00
19.	Confirmatory methods		Yes—1.00, No—0.00
20.	χ^2, NFI, GFI, CFI, RMSEA		0.20 points for each confirmatory method
21.	Form of the presented results		Text—0.30 points, Table—0.50 points, Picture—1.00 points
22.	Internal validity		Yes—1.00, No—0.00
23.	Coefficient of determination (R^2) results		Yes—1.00, No—0.00

Each parameter was presented to the reviewer, who assessed the number of points the paper should get in each line. The reviewers could answer the questions with a number of points. All the parameters were objective and not subject to individual judgment, but the three reviewers were used for double-checking the number of points. A higher score presents a better fulfilment of the criteria.

The reviewers also checked if the year of conducting the survey for the research (5) was written, and the sample frame (6), meaning who was invited to participate in the survey, was explained. The reviewers also checked if the authors of the selected papers stated that they used random sampling (7). The reviewers also looked for the information if the response rate of the invited participants and responding participants was over 20% (8), or the country where the research was conducted (9). For each of the parameters from 1–9 the paper could receive 0 points for not fulfilling the requirement and 1 point for fulfilling it.

Next, the reviewers wrote down the number of participants (10) in the survey from the paper presenting the sample size (the number of participants responded to the survey). If the number of participants was not stated, the paper received 0 points for that parameter. Next, if the demographical data like the age of participants (11) and gender ratio of participants (12) were written in the paper, the paper received 1 point for these two parameters.

The next parameters were oriented towards models' presentation. If the model was built with multi-item variables (13), the paper received 1 point. The average number of items per variable (14) was also collected. Next, the reviewers collected data if convergent validity was presented with three measures—Cronbach's alpha (15), composite reliability (16) and average variance extracted (17). For each of the three measures, the paper received 1 point if the authors presented the results of the measures in the paper. Also, if construct validity (18) was elaborated by exploratory factor analysis with factor loadings, the paper received 1 point. Next, the reviewers searched for information on confirmatory methods (19) in the paper. If some confirmatory methods existed, the paper received 1 point, and if methods $\chi 2$, NFI, GFI, CFI, RMSEA (20) were presented, 0.20 point was given for each of these five methods. Next, if the results of the models (21) were presented in the text, the paper received 0.30 points, if they were presented in a table, the paper received 0.50 points, and if the results were presented in a picture, the paper received 1 point. It is a lot easier for a reader to see a picture with the results presented than to search for the correlation results in a table or text in a long paper. Finally, the paper received 1 point if internal validity (22) was present, meaning that the results were discussed thoroughly, and another point if the coefficient of determination (R^2) results (23) were presented. The analysis of these parameters are presented in Section 4.3.

4. Analysis

4.1. Bibliometric Overview

In this section, a bibliometric overview of the selected publications is presented in Figure 2. The publications from the early years of research on this topic had a higher number of citations than the ones from the last years. The reason for low citation numbers in the last years is that there was not enough time for gathering citations, but we can assume those papers will receive additional citations. Among the 98 final papers, 84 were journal papers, 13 were conference papers, and one was a book section. If we observe the publication type through the years, we can see that, in the first years, there were more conference papers or an equal amount of conference papers to journal papers. This shifted drastically from 2012, where we can see that most of the papers with the topic on social networking sites, privacy and disclosure were published in journals. In 2021, only the first part of the year is included, and that is why the number of papers on the topic is lower, but we can already see some decline in 2020 in the total number of papers, which could also be due to the SARS-CoV-2 pandemic. The research field of social networking sites remains relevant.

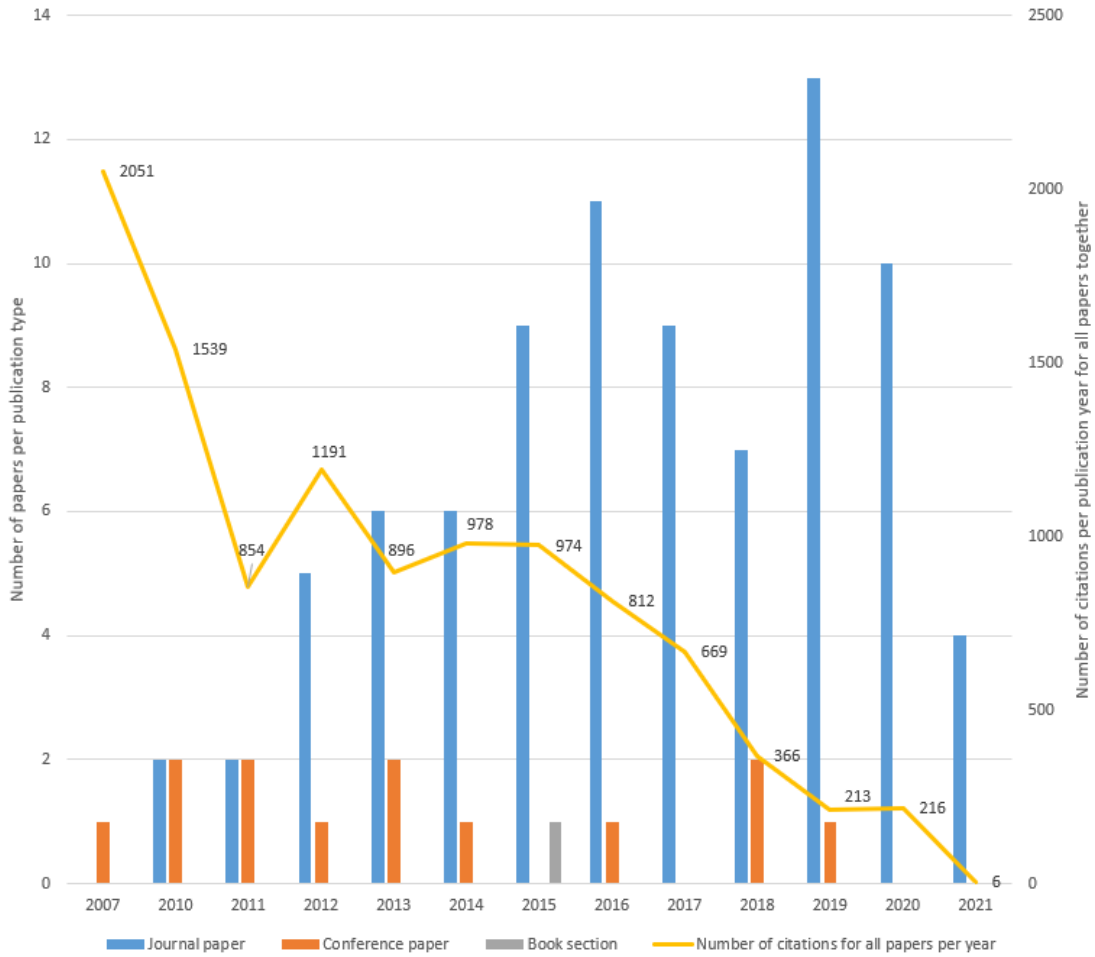

Figure 2. Number of citations for all publications per year for all papers and number of papers per publication type per year.

As presented in Table 3, in the scope of the review we found papers from 65 different publishers. Some journals or conferences published more than one paper with models on privacy and disclosure. The journal Computers in Human Behavior published 11 papers, and the Journal of the Association for Information Science and Technology published five papers on this topic. The conference where most papers with models were published was The Americas Conference on Information Systems.

Table 3. Journals or conferences in which more than one selected paper was published.

Publication Type	Journal/Conference	Number of Papers Published
Journal	Computers in Human Behavior	11
Journal	Journal of the Association for Information Science and Technology	5
Journal	Behaviour & Information Technology	4
Journal	Information Technology & People	4
Conference	AMCIS	3
Journal	International Journal of Information Management	3
Journal	Journal of Computer-Mediated Communication	3
Journal	Decision Support Systems	2
Journal	European Journal of Information Systems	2
Conference	Hawaii International Conference on System Sciences	2
Journal	Information & Management	2
Journal	Information Systems and e-Business Management	2
Journal	New Media & Society	2
Journal	Sustainability	2

4.2. Analysis of Gathered Data

Basic information on the publications is presented in Table A1. The publication ID will be used on graphs and in the tables. Presented also are the authors, the title of the paper, the year of publication and publication type as well as publisher. Out of all the papers, 84 were published in journals, 13 in conferences and one in the book section. The first paper was published in 2007.

We conducted an analysis on which theories the models in the papers were based on. As presented in Table 4, most publications used the privacy calculus theory [37] and communication privacy management (CPM) [17] theory as the basic theory behind their model. Out of 98 papers, in 40 papers, the authors did not present any broader theory as a basis for their model. In 53 papers the authors used one theory, and in five papers the authors used two different theories.

Table 4. Most commonly used background theories for the models.

Theory Used in Papers	Number of Papers the Theory Was Used in
Privacy calculus	20
Communication privacy management (CPM)	18
Technology acceptance model (TAM)	7
Theory of reasoned action (TRA)	5
Theory of planned behavior (TPB)	3
Social capital theory (SCT)	2
Protection motivation theory (PMT)	2
Construal level theory (CLT)	1
Unified Theory of Acceptance and Use of Technology (UTAUT2)	1
Concern about others' privacy (COP)	1
Disclosure of information about others (DIO)	1
Social penetration theory (SPT)	1
Social role theory (SRT)	1

The frequency of theories used in papers by publication year is shown in Figure 3. In recent years, there has been a growth of privacy calculus and CPM theories' use. The theory acceptance model (TAM) theory [38] was used in most cases until 2015.

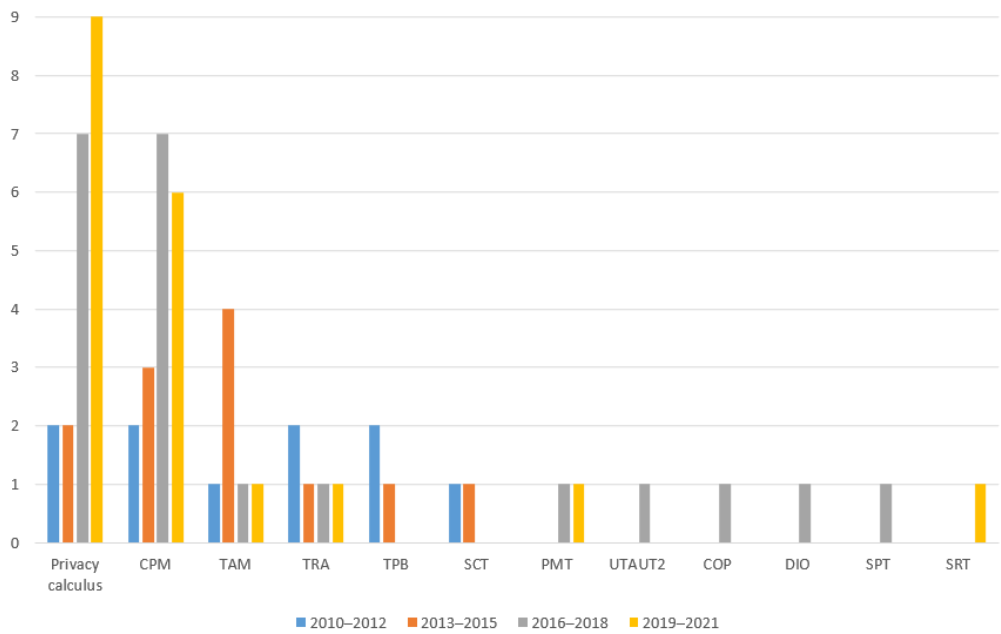

Figure 3. Frequency of theories used in papers by year of publication.

The world map in Figure 4 presents the number of studies carried out in which country. In some studies, more than one country was selected to confirm the models, so all the countries are counted leading to a total of 99 studies in 25 different countries. By continents, there were 38 studies carried out in North America, 36 in Asia, 24 in Europe and one in Africa.

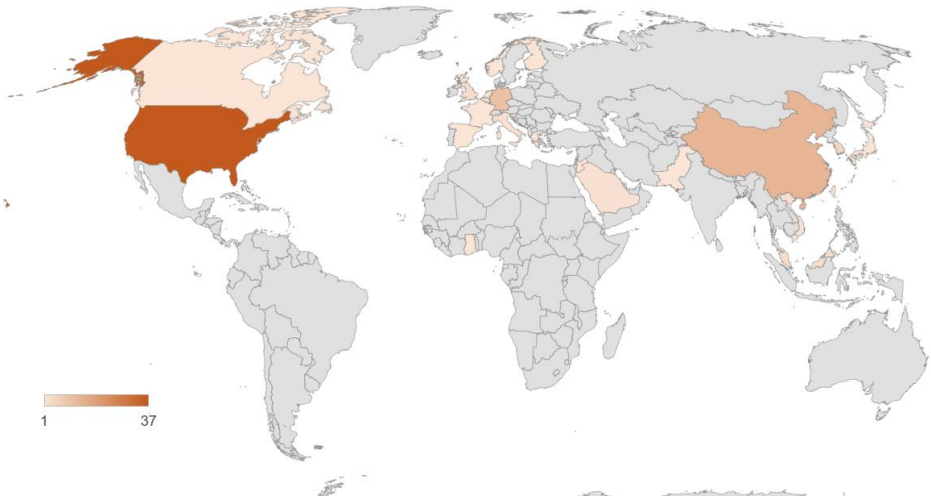

Figure 4. Number of studies done in each country.

After collecting the data from 98 papers, we also collected information on the coefficient of determination (R^2) for privacy factors in each study (if available), and the R^2 for disclosure factor in each study. R^2 presents the percentage of the variation in the dependent variable that is predictable from the independent variables [56]. We collected the R^2 for the privacy factor from 26 studies, and for the disclosure factor from 55 studies. As presented in Figure 5, we created a scatter plot of R^2 and the number of participants in those studies.

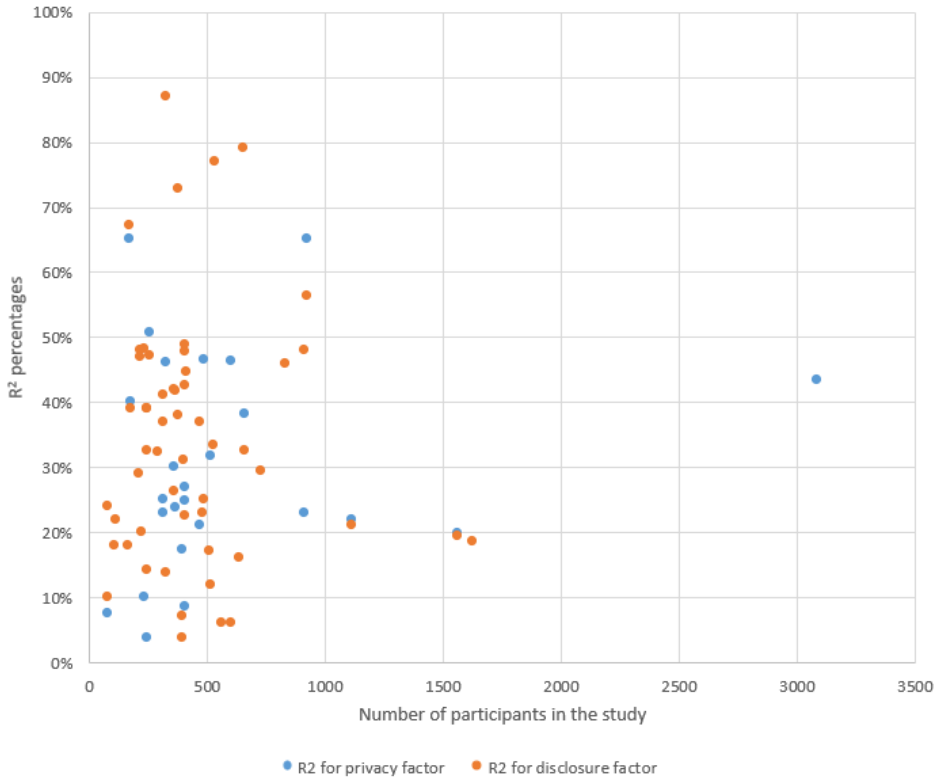

Figure 5. Coefficient of determination (R^2) for privacy and the disclosure factor in studies and the number of participants in the studies.

4.3. Analysis of the Acquired Publications

The last part of the systematic review presents the scores for measuring the number of included parameters in the selected publications in regard to a good presentation of the paper. The used methodology for scores is presented in the Literature Section on quality. In Table A2 the score of the models in the papers is presented, based on the 23 measurement parameters from Table 2.

In Table 5, minimum and maximum values, as well as means and standard deviations are presented for each of the parameters. Since most of the parameters have 0 or 1 values, the mean also presents the percentage in how many papers the measurement parameters of the paper were met. Background theory was presented in 58 papers, while content validity was not presented in just one paper. A pre-test was included in 39 papers, and an explanation of the scale used for the measurements was found in 87 papers. The year of research was presented in 42 papers, and information on who was invited to participate in the survey in all papers. Random sampling was used only in eight papers, and a response rate of over 20% was reported in nine papers. In 85 papers, the country of research was given. The average number of participants in a survey was 522 respondents, and the age of participants was reported in 86 papers. The gender ration was reported in 88 papers.

Table 5. Descriptive statistics of the measurement parameters.

			Min	**Max**	**Mean**	**S.D.**
1.	Theory presented		0.00	1.00	0.59	0.49
2.	Content validity		0.00	1.00	0.99	0.10
3.	Pre-test		0.00	1.00	0.40	0.49
4.	Scale explained		0.00	1.00	0.89	0.32
5.	Year of research		0.00	1.00	0.43	0.50
6.	Sample frame (who was invited)		0.00	1.00	1.00	0.00
7.	Random sampling		0.00	1.00	0.08	0.28
8.	Response rate over 20%		0.00	1.00	0.09	0.29
9.	Country of research		0.00	1.00	0.87	0.34
10.	Number of participants who responded to the survey		66	3085	521.89	527.92
11.	Age of participants		0.00	1.00	0.88	0.33
12.	Gender ratio of participants		0.00	1.00	0.90	0.30
13.	Multi-item variables		0.00	1.00	0.95	0.22
14.	Average number of items per variable		2.00	8.00	4.04	1.02
15.	Convergent validity	Cronbach's alpha	0.00	1.00	0.79	0.41
16.		Composite reliability	0.00	1.00	0.64	0.48
17.		Average variance extracted	0.00	1.00	0.70	0.46
18.	Construct validity		0.00	1.00	0.71	0.45
19.	Confirmatory methods		0.00	1.00	0.45	0.50
20.	χ^2, NFI, GFI, CFI, RMSEA		0.00	1.00	0.33	0.39
21.	Form of the presented results		0.30	1.00	0.90	0.21
22.	Internal validity		0.00	1.00	0.99	0.10
23.	Coefficient of determination (R^2) results		0.00	1.00	0.55	0.50

Multi-item variables were used in 93 papers, and the average amount of items used for models was 4.04. Convergent validity was reported with Cronbach's alpha, and composite reliability and average variance extracted in 77, 63 and 69 papers, respectively. Construct

validity was reported in 70 papers, and confirmatory methods were used in 44 papers. Internal validity was discussed in 97 papers and coefficient of determination results were presented in 54 papers.

Next, we performed an ordered probit model with convergent validity (15–17) as a dependent variable, and theory presented (01), construct validity (18) and coefficient of determination (23) as independent variables. Cronbach's alpha, composite reliability and average variance extracted were summed into one dependent variable, convergent validity, having 0, 1, 2 or 3 as a result for this variable for each paper. The results of the omnibus test were significant with the likelihood ratio chi-square 46.15, which means that our proposed model containing the three predictors represents a significant improvement compared to the unconditional model. The relationship between independent variables and the dependent variable were positive, with the *p*-values lower than 0.05, as presented in Table 6. We can assume that these relationships are statistically significant, and that there is a statistically significant positive linear relationship between theory presented, coefficient of determination, construct validity and convergent validity. Papers that have included theory presented, coefficient of determination and construct validity have a positive effect on convergent validity, meaning that they have also likely presented convergent validity measures if they have also presented the three parameters. All three parameters are statistically significant and were tested with the Wald chi-square test.

Table 6. Results of the probit model.

Dependent Variable: Convergent Validity	B	Std. Dev.	Hypothesis Test	
			Wald Chi-Square	Sig.
Theory presented	0.837	0.256	10.675	0.001
Construct validity	1.072	0.279	14.788	0.000
Coefficient of determination	1.099	0.262	17.605	0.000

We also calculated the sum of scores for each publication by summing all points for the 23 parameters, but we divided the number of participants by 1000 and the average number of items available by 30, so that each of the parameters had similar minimum and maximum values. We also transformed the final scores to percentages for an easier graph reading. This score cannot be interpreted as a measure of quality, but it presents a number of items that were included in papers from the 23 parameters presented in Table 2. Moreover, if the authors exclude one parameter from reporting, it does not mean that it has the same scientific value as the other parameter they are reporting. The parameters are not presented in a balanced scale, but can serve as a checklist of which parameters were included in the reporting. Ideally, all the presented parameters should be included in studies explaining SEM models.

We used the sum of scores per year and per used theory in the papers, and created a graph in Figure 6. The clustered column presents the average score for all the papers that built the model based on a specific theory. In 40 papers, the authors did not use any theory as a background for building a model, and these papers had an average score of 52.95%, which was the lowest average score when comparing it to groups of papers with some background theories. In five papers, the authors used two theories as a background, and those papers were counted in each theory category. The highest sum of scores was received by the paper using the Social penetration theory (SPT). Further on, the average sum of scores per year of publication for each theory used in the papers is presented on the graph.

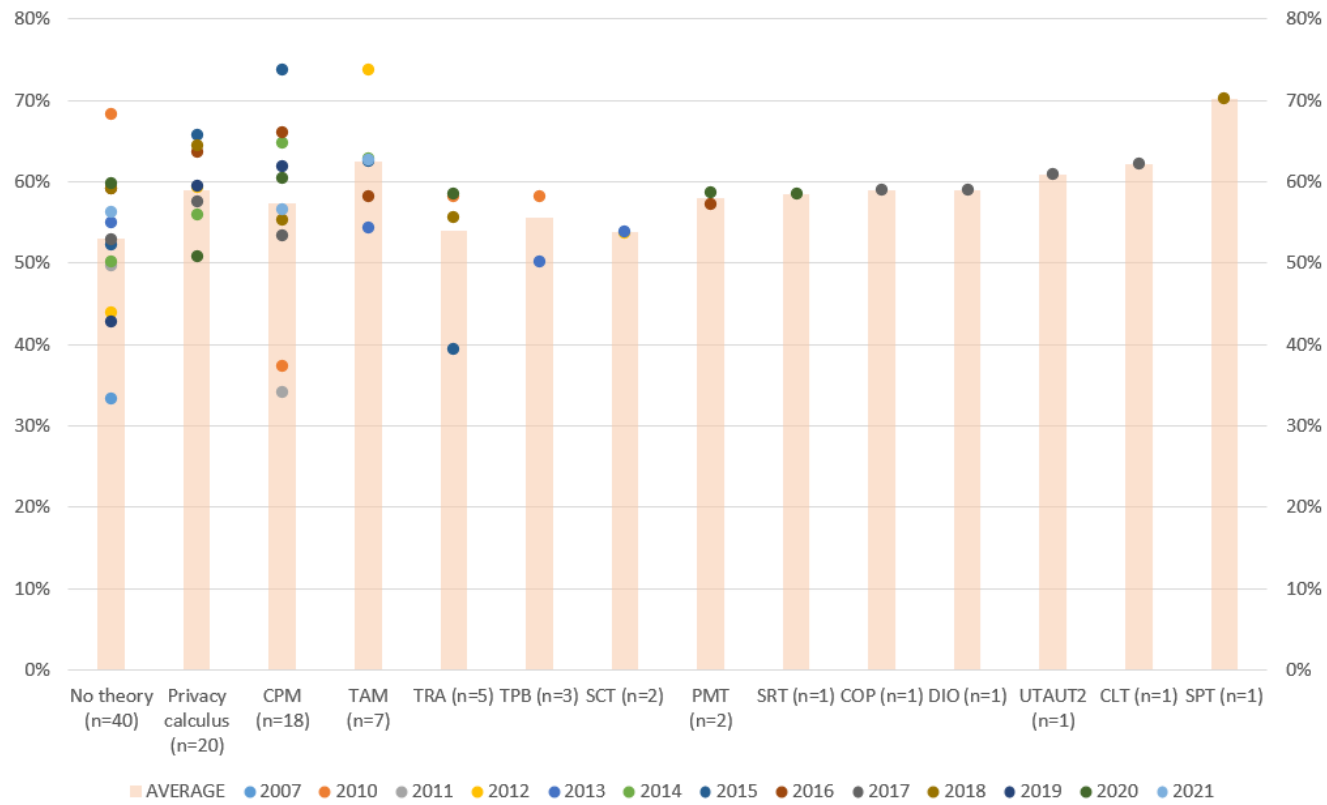

Figure 6. Average sum of scores per year of publication and theory type, and the average sum of scores for papers with theories or no theory behind the model.

As is presented in Figure 7, the graph shows the average scores per publication year and per measurement parameter. All measures have a minimum and maximum value of 0 and 1, except measures 10 and 14. Measure 10 has a minimum of 0.07 and maximum of 3.09, and the highest average of 0.96 in 2018. Measure 14 has a minimum of 0.60 and maximum of 2.40, and the highest average of 1.31. In Figure 7 the orange column presents the average amount of points received in each parameter, and the blue dots present the average amount of points per years of publication. The darker dots present more recent studies, and are more often seen above the average of the specific parameter than the lighter dots. A further detailed analysis of each parameter shows that some measures have been used more often in recent years than they were in the first years. This increase of reporting specific parameters in papers can be seen in: (1) theory presented, (16) composite reliability, (17) average variance extracted, (18) construct validity and (19, 20) confirmatory methods, Moreover, the value for parameter (10), which presents the number of participants who responded to the survey, was increasing until 2018, from 117 to 962 participants on average per year, but after that year, the number of participants decreased to 350, 462 and 356 in the years 2019, 2020 and 2021 respectively. The results show that the authors in the recent publications have improved the quality of reporting SEM or other statistical models on the topic of privacy and disclosure on SNSs.

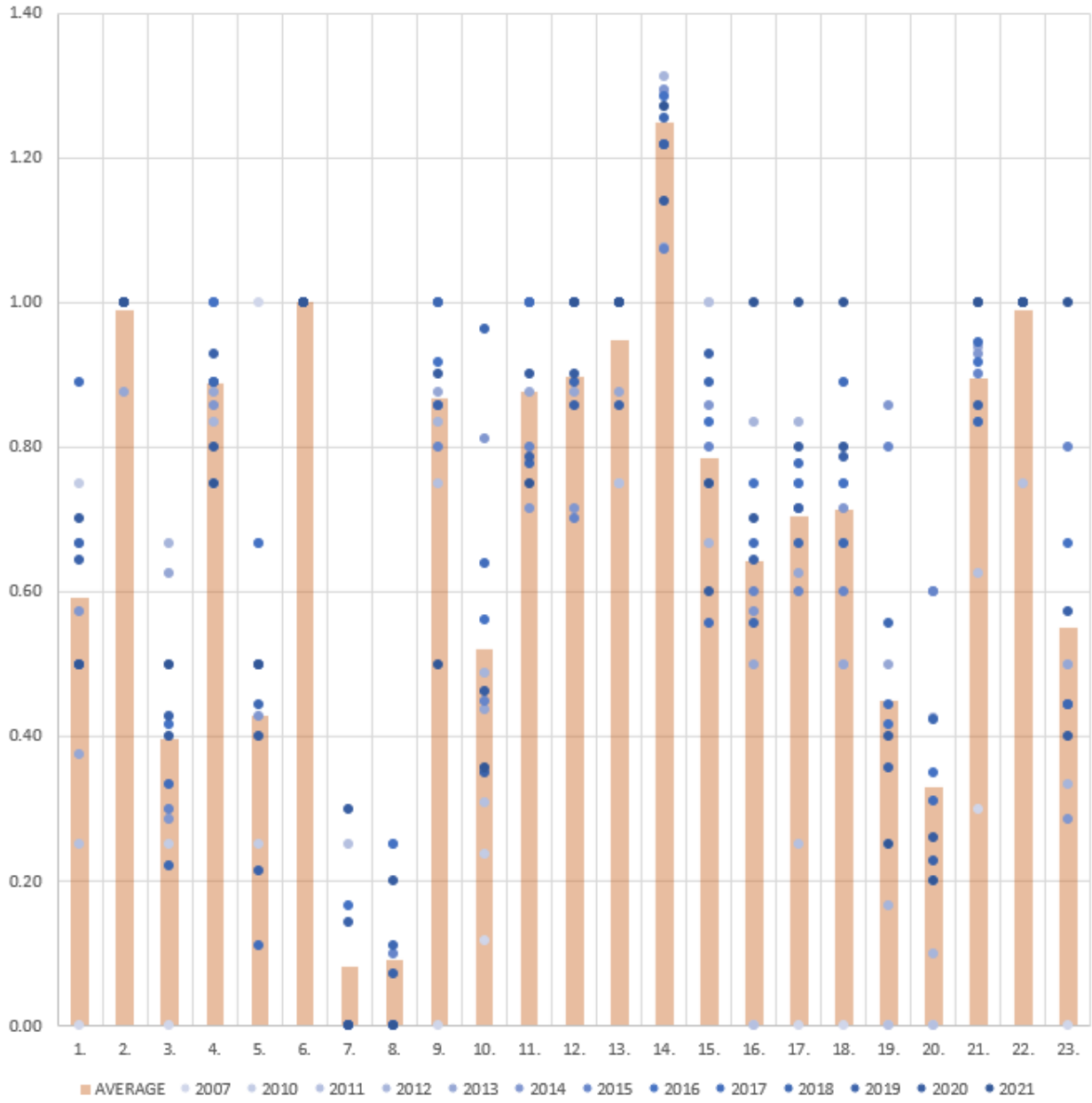

Figure 7. Average scores for each of the 23 measurement parameters by year of publication.

5. Discussion and Conclusion

In this section, we discuss the proposed research questions based on the presented analysis of the papers.

RQ1: To what extent is privacy and disclosure behaviour researched in social networking sites?

The most popular social networking site, Facebook, was founded in 2006, and has been the most popular SNS since 2009. Researchers had already started carrying out research with building models with privacy and disclosure of users in 2007, so the topic has been extensively researched for the past 14 years. In the review process, we included 98 papers containing such papers with models, found in 6 electronic databases. The number of citations these papers received are very high; papers with more than 500 citations up to now have been received by the papers published in 2007, 2010, 2012 and 2014 [57–60]. This shows that the topic is still interesting to other researchers.

The number of citations for all publications per year, summed for all papers in a year and the number of papers per publication type per year are presented in Figure 2. In the first years more conference papers were published, but, later on, journal papers prevailed.

Further on, in Table 3, we found that 65 different publishers have published papers containing models with privacy and disclosure. Among most published papers are the Computers in Human Behavior journal, which published 11 papers, and the Journal of the Association for Information Science and Technology, which published five papers on this topic.

In Figure 4, we also presented a world map, where the number of studies in each country is presented. Some studies did not have that information, and some studies were conducted in more than two countries. Altogether, the studies were carried out in 25 different countries. If we consider the continents, most studies (38) were conducted in North America, followed by 36 in Asia, 24 in Europe and one in Africa.

All our findings show that this is an active field, and none of the studies included all factors that could have an effect on privacy or disclosure factors when considering SNSs because the highest coefficient of determination presented in Figure 5 is 65% for privacy factor and 87% for disclosure factor.

RQ2: Which are the most commonly used background theories for the models containing privacy and disclosure constructs?

In this paper, we also collected information on the background theories used in the models, containing privacy and disclosure constructs, built with SNSs users. Normally, when building a model for SNSs, established theories are used as a background for newly created models. We collected information on which background theories were used in specific papers. In 40 out of 98 papers, the authors did not present any background theory. In 52 papers, the authors used one background theory, and in five papers, the authors used two different theories.

Altogether, the privacy calculus theory has been used in 20 papers, and the communication privacy management theory has been used in 18 papers. There has been a growth of these two theories' usage in the papers in recent years. The technology acceptance model (TAM) has been used in seven studies, the theory of reasoned action (TRA) in five studies, the theory of planned behavior (TPB) in three studies, and social capital theory (SCT) in two studies, but all these four theories were used mostly in the beginning of the research, mainly until 2015. Since 2016, new theories have been used in the papers, such as the protection motivation theory (PMT), the construal level theory (CLT), the unified theory of acceptance and use of technology (UTAUT2), concern about others' privacy (COP), disclosure of information about others (DIO), the social penetration theory (SPT) and the social role theory (SRT).

The analysis of the used background theories are presented in Table 4, where the number of papers the theory was used in is presented, and in Figure 3, where frequency of theories used in papers is presented by year of publication.

RQ3: Do the SEM or regression models on privacy and disclosure include recommended measures for explaining the results of the model?

In the research papers it is very important that the quality of the presented results is high. When presenting SEM or regression models, it is important to include substantial information on how the data were gathered and how the measurement items were established. Further, it is important that the analysis of results is presented in the most detailed way possible for the possibility of replication and better understanding by the reader of the analysis results. Based on the presentation of the results, the papers were given a score for the 23 measurement parameters, which we searched for in each paper. The 23 measurement parameters are presented in Table 2, their analysis in Table 5, and the individual scores given to each of the 98 papers are presented in Table A2.

The parameters with the three lowest average number of points are presented, meaning that these parameters were not presented in the papers often, and further research papers could focus on also including these parameters. First, random sampling was not mentioned

in 90 out of 98 papers, which is often hard to achieve. Most commonly the convenience sampling method was used, and this method does not require random sampling. Second, the response rate was not mentioned in 89 papers, which is, again, expected if most papers are using the convenience sampling method where response rate is often difficult to track. Third, in confirmatory methods, information on the results of the $\chi 2$, NFI, GFI, CFI and RMSEA methods were collected, and 54 papers did not present any of the confirmatory methods for their models. The confirmatory methods are used for presenting model fit to validate the proposed model, and it is vital for readers to understand how the proposed model fits within the well-established methods for testing SEM models.

The results also show that papers with some background theory had a better quality of reporting the models, and that, in recent years, the amount of measurement parameters included in reporting has also improved in papers presenting privacy and disclosure in SNSs.

In sum, the research in building models with privacy and disclosure constructs in connection to SNSs is quite broad, but it is still an active field for researchers, because the SNSs are evolving. Also, the theories used as background theories are changing through time, and, most importantly, researchers need to understand that the quality of the results' presentation for statistical models is very important if they want to achieve acknowledgement.

5.1. Conclusions

This research presents a current overview of state-of-the art papers, where models have been built containing privacy and disclosure constructs in regard to SNSs' use. Many users visit Facebook and other SNSs on a daily basis. SNSs users share a great deal of personal information daily, hence the reason for privacy and disclosure being highly researched from the beginning of the use ofSNSs.

In this paper, we collected 98 papers in six online databases published between 2006 and 2022. The papers contain privacy and disclosure constructs, and were tested on SNSs' users. We defined three research questions and analyzed 98 papers according to the research questions. The selected papers are highly cited, and most studies were conducted in North America, Asia and Europe, in 25 different countries.

Our findings also indicate that papers which used background theories for their models also presented their analysis better in the paper, scoring a higher percentage for the sum of scores. In 40 out of 98 papers, the authors did not present any background theory. Next, it is crucial that the researchers present their SEM or regression models with detailed background information and analysis results, for the reader to understand the results better. The parameters that received the lowest score on average for all papers were random sampling, response rate and confirmatory methods. It is difficult to achieve random sampling because most researchers work on a budget, and that is why, usually, response rate is also not calculated, because most papers use convenience sampling methods. However, it is very important that the researchers confirm their built SEM models with confirmatory methods, which did not happen in 54 papers.

The limitation of this paper is that the sum of scores for parameters presents a weighted scale, and because most of the analyzed models were SEM, the scores were established from multiple sources to obtain broader information of the paper presentation and results. The sum of scores for papers was used in two figures and it presents a one-dimensional quality ranking of papers. However, we find that the results in the two figures present a good outline for future papers on this topic.

The limitation of this study is also that papers appearing in database searches up to August 2021 are included in the analysis, while more papers could have been published by the time the paper was published. These papers could be added for further research on this topic to extend the list of 98 extracted papers.

There is greater potential for publishing quality research work regarding privacy and disclosure models. Most of the built models also present a foundation for SNSs developers

to understand the users' view of privacy, and, afterwards, users' disclosure of information. The field is still very active and important for researchers to continue their research work on SNSs to get a better understanding of SNSs information development.

Some systematic review studies have already included SEM or regression models for SNSs users, but, to the best of our knowledge, none of the studies included such a sample of models focusing on privacy and disclosure constructs [15]. Some existing literature reviews focus only on privacy constructs or disclosure, or behavior constructs separately [10–14]. No other paper has analyzed SEM and regression models with such methods.

5.2. Future Research Directions

This paper gives future researchers on this topic an overview of state-of-the-art papers containing models with privacy and disclosure constructs tested on SNSs users. In the paper, theories used in such studies as a background are presented, and may be useful for future researchers. Additionally, also presented are journals or conferences that have accepted the most papers, which is useful for authors looking for journals or conferences where they could publish their work.

There is some lack of worldwide research on this topic, because most of the studies were carried out in North America, Asia and Europe, but SNSs are used by most of the population of the world. This is a possibility of constructing the same research in parts of the world where such studies have not yet been conducted and can bring new findings in this topic. It is also important that researchers in the future studies with SEM and other statistical models present their results in detail, so that the paper reaches more readers and acknowledgements. The topic selected for this systematic review is still very active, and new research should be conducted because SNSs are also changing constantly, as well as users' opinions.

For future research, there are many studies that could be carried out to extend the current knowledge on the topic. Our research shows that privacy constructs often have an effect on disclosure constructs in SEM done on SNSs users. The highest coefficients of determination for privacy and disclosure constructs were 65% and 87%, respectively. This shows that there is opportunity for future research on finding new constructs that affect privacy or disclosure.

One systematic literature review on privacy attitude and behavior was carried out in 2017 [15]. The area of systematic literature reviews on privacy, disclosure and SNSs also lacks a thorough review of what factors have an effect on privacy and disclosure constructs, and which privacy and which disclosure constructs are used in existing models. This could give researchers a better idea of what is still not researched in the field of privacy and disclosure on SNSs.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Bibliometric overview of selected papers.

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
1	[57]	2007	Dwyer, C., et al.	Trust and privacy concern within social networking sites: A comparison of Facebook and MySpace	Conference	AMCIS
2	[61]	2010	Lo, J.	Privacy Concern, Locus of Control, and Salience in a Trust-Risk Model of Information Disclosure on Social Networking Sites	Conference	AMCIS
3	[62]	2010	Lo, J. and C. K. Riemenschneider	An Examination of Privacy Concerns and Trust Entities in Determining Willingness to Disclose Personal Information on a Social Networking Site	Conference	AMCIS
4	[58]	2010	Krasnova, H., et al.	Online social networks: Why we disclose	Journal	Journal of Information Technology
5	[63]	2010	Posey, C., et al.	Proposing the online community self-disclosure model: the case of working professionals in France and the U.K. who use online communities	Journal	European Journal of Information Systems
6	[64]	2011	Gibbs, J. L., et al.	First Comes Love, Then Comes Google: An Investigation of Uncertainty Reduction Strategies and Self-Disclosure in Online Dating	Journal	Communication Research
7	[65]	2011	Almadhoun, N. M., et al.	Perceived security, privacy, and trust concerns within Social Networking Sites: The role of Information sharing and relationships development in the Malaysian Higher Education Institutions' marketing	Conference	IEEE International Conference on Control System, Computing and Engineering
8	[29]	2011	McKnight, D. H., et al.	Social Networking Information Disclosure and Continuance Intention: A Disconnect	Conference	Hawaii International Conference on System Sciences
9	[66]	2011	Stutzman, F., et al.	Factors mediating disclosure in social network sites	Journal	Computers in Human Behavior
10	[67]	2012	Becker, L. and K. Pousttchi	Social networks: the role of users' privacy concerns	Conference	International Conference on Information Integration and Web-based Applications & Services

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
11	[68]	2012	Chen, R. and S. Sharma	Understanding User Behavior at Social Networking Sites: A Relational Capital Perspective	Journal	Journal of Global Information Technology Management
12	[69]	2012	Krasnova, H., et al.	Self-disclosure and Privacy Calculus on Social Networking Sites: The Role of Culture	Journal	Business & Information Systems Engineering
13	[60]	2012	Lin, S.-W. and Y.-C. Liu	The effects of motivations, trust, and privacy concern in social networking	Journal	Service Business
14	[70]	2012	Vitak, J.	The Impact of Context Collapse and Privacy on Social Network Site Disclosures	Journal	Journal of Broadcasting & Electronic Media
15	[71]	2012	Zhao, L., et al.	Disclosure Intention of Location-Related Information in Location-Based Social Network Services	Journal	International Journal of Electronic Commerce
16	[30]	2013	Chen, R.	Living a private life in public social networks: An exploration of member self-disclosure	Journal	Decision Support Systems
17	[72]	2013	Chen, R. and S. K. Sharma	Self-disclosure at social networking sites: An exploration through relational capitals	Journal	Information Systems Frontiers
18	[73]	2013	Dhami, A., et al.	Impact of trust, security and privacy concerns in social networking: An exploratory study to understand the pattern of information revelation in Facebook	Conference	IEEE International Advance Computing Conference
19	[74]	2013	Kim, J. Y., et al.	Why people use social networking services in Korea: The mediating role of self-disclosure on subjective well-being	Journal	Information Development
20	[75]	2013	Liu, C., et al.	Cognitive, personality, and social factors associated with adolescents' online personal information disclosure	Journal	Journal of Adolescence
21	[76]	2013	Salleh, N., et al.	An Empirical Study of the Factors Influencing Information Disclosure Behaviour in Social Networking Sites	Conference	International Conference on Advanced Computer Science Applications and Technologies

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
22	[23]	2013	Taddei, S. and B. Contena	Privacy, trust and control: Which relationships with online self-disclosure	Journal	Computers in Human Behavior
23	[24]	2013	Xu, F., et al.	Factors affecting privacy disclosure on social network sites: an integrated model	Journal	Electronic Commerce Research
24	[77]	2014	Sriratanaviriyakul, N., et al.	Vietnamese privacy concerns and security in using online social networks	Journal	International Journal of Electronic Security and Digital Forensics
25	[78]	2014	Alarcón-del-Amo, M.-d.-C., et al.	Adoption of social networking sites by Italian	Journal	Information Systems and e-Business Management
26	[26]	2014	Chang, C.-W. and J. Heo	Visiting theories that predict college students' self-disclosure on Facebook	Journal	Computers in Human Behavior
27	[79]	2014	Chang, L. and J. V. Chen	Aligning principal and agent's incentives: A principal–agent perspective of social networking sites	Journal	Expert Systems with Applications
28	[59]	2014	Mamonov, S. and M. Koufaris	The Impact of Perceived Privacy Breach on Sustainability of Social Networking Sites	Conference	Hawaii International Conference on System Sciences
29	[80]	2014	Sharma, S. and R. E. Crossler	Disclosing too much? Situational factors affecting information disclosure in social commerce environment	Journal	Electronic Commerce Research and Applications
30	[81]	2014	Taddicken, M.	The 'Privacy Paradox' in the Social Web: The Impact of Privacy Concerns, Individual Characteristics, and the Perceived Social Relevance on Different Forms of Self-Disclosure*	Journal	Journal of Computer-Mediated Communication
31	[82]	2015	Benson, V., et al.	Information disclosure of social media users: Does control over personal information, user awareness and security notices matter	Journal	Information Technology & People
32	[83]	2015	Azam, A.	Model for individual information privacy disclosure in social commerce environment	Journal	International Journal of Business Environment
33	[84]	2015	Chen, H.-T. and W. Chen	Couldn't or wouldn't? The influence of privacy concerns and self-efficacy in privacy management on privacy protection	Journal	Cyberpsychology, Behavior, and Social Networking

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
34	[85]	2015	Cheung, C., et al.	Self-disclosure in social networking sites: The role of perceived cost, perceived benefits and social influence	Journal	Internet Research
35	[86]	2015	Ernst, C.-P. H.	Risk Hurts Fun: The Influence of Perceived Privacy Risk on Social Network Site Usage	Book section	Springer Fachmedien Wiesbaden
36	[87]	2015	Gerlach, J., et al.	Handle with care: How online social network providers' privacy policies impact users' information sharing behavior	Journal	The Journal of Strategic Information Systems
37	[88]	2015	Gupta, A. and A. Dhami	Measuring the impact of security, trust and privacy in information sharing: A study on social networking sites	Journal	Journal of Direct, Data and Digital Marketing Practice
38	[89]	2015	Min, J. and B. Kim	How are people enticed to disclose personal information despite privacy concerns in social network sites? The calculus between benefit and cost	Journal	Journal of the Association for Information Science and Technology
39	[90]	2015	Nemec Zlatolas, L., et al.	Privacy antecedents for SNS self-disclosure: The case of Facebook	Journal	Computers in Human Behavior
40	[91]	2015	Shibchurn, J. and X. Yan	Information disclosure on social networking sites: An intrinsic–extrinsic motivation perspective	Journal	Computers in Human Behavior
41	[92]	2016	Chen, H., et al.	Protecting Oneself Online:The Effects of Negative Privacy Experiences on Privacy Protective Behaviors	Journal	Journalism & Mass Communication Quarterly
42	[93]	2016	Dienlin, T. and M. J. Metzger	An Extended Privacy Calculus Model for SNSs: Analyzing Self-Disclosure and Self-Withdrawal in a Representative U.S. Sample	Journal	Journal of Computer-Mediated Communication
43	[94]	2016	Hajli, N. and X. Lin	Exploring the Security of Information Sharing on Social Networking Sites: The Role of Perceived Control of Information	Journal	Journal of Business Ethics
44	[28]	2016	Heirman, W., et al.	An open book on Facebook? Examining the interdependence of adolescents' privacy regulation strategies	Journal	Behaviour & Information Technology

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
45	[95]	2016	Hina, S., et al.	A Relational Study of Critical Threats and Risks Affecting the Potential Usage of Collaborative Pattern	Journal	Global Journal of Flexible Systems Management
46	[96]	2016	Kitsiou, A., et al.	Digital privacy and social capital on social network sites. friends or foes?	Conference	ACM
47	[97]	2016	Li, K., et al.	Information privacy disclosure on social network sites: an empirical investigation from social exchange perspective	Journal	Nankai Business Review International
48	[98]	2016	Liou, D.-K., et al.	Investigating information sharing behavior: the mediating roles of the desire to share information in virtual communities	Journal	Information Systems and e-Business Management
49	[99]	2016	Malik, A., et al.	Impact of privacy, trust and user activity on intentions to share Facebook photos	Journal	Journal of Information, Communication and Ethics in Society
50	[100]	2016	Min, J.	Personal information concerns and provision in social network sites: Interplay between secure preservation and true presentation	Journal	Journal of the Association for Information Science and Technology
51	[101]	2016	Ng, M.	Factors influencing the consumer adoption of Facebook: A two-country study of youth markets	Journal	Computers in Human Behavior
52	[21]	2016	Wang, T., et al.	Intention to disclose personal information via mobile applications: A privacy calculus perspective	Journal	International Journal of Information Management
53	[102]	2017	Chen, J. V., et al.	Users' intention to disclose location on location-based social network sites (LBSNS) in mobile environment: privacy calculus and Big Five	Journal	International Journal of Mobile Communications
54	[103]	2017	Hallam, C. and G. Zanella	Online self-disclosure: The privacy paradox explained as a temporally discounted balance between concerns and rewards	Journal	Computers in Human Behavior
55	[104]	2017	Herrero, Á., et al.	Explaining the adoption of social networks sites for sharing user-generated content: A revision of the UTAUT2	Journal	Computers in Human Behavior

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
56	[105]	2017	James, T. L., et al.	Exposing others' information on online social networks (OSNs): Perceived shared risk, its determinants, and its influence on OSN privacy control use	Journal	Information & Management
57	[106]	2017	Koohikamali, M., et al.	Beyond self-disclosure: Disclosure of information about others in social network sites	Journal	Computers in Human Behavior
58	[107]	2017	Liu, Q., et al.	Predicting users' privacy boundary management strategies on Facebook	Journal	Chinese Journal of Communication
59	[108]	2017	Ozdemir, Z. D., et al.	Antecedents and outcomes of information privacy concerns in a peer context: An exploratory study	Journal	European Journal of Information Systems
60	[109]	2017	Trepte, S., et al.	A Cross-Cultural Perspective on the Privacy Calculus	Journal	Social Media + Society
61	[110]	2017	Wang, L., et al.	Let the users tell the truth: Self-disclosure intention and self-disclosure honesty in mobile social networking	Journal	International Journal of Information Management
62	[111]	2018	Chen, H.-T.	Revisiting the Privacy Paradox on Social Media With an Extended Privacy Calculus Model: The Effect of Privacy Concerns, Privacy Self-Efficacy, and Social Capital on Privacy Management	Journal	American Behavioral Scientist
63	[112]	2018	Liu, Z. and X. Wang	How to regulate individuals' privacy boundaries on social network sites: A cross-cultural comparison	Journal	Information & Management
64	[113]	2018	Millham, M. H. and D. Atkin	Managing the virtual boundaries: Online social networks, disclosure, and privacy behaviors	Journal	New Media & Society
65	[114]	2018	Osatuyi, B., et al.	"Fool me once, shame on you . . . then, I learn." An examination of information disclosure in social networking sites	Journal	Computers in Human Behavior
66	[115]	2018	Proudfoot, J. G., et al.	Saving face on Facebook: privacy concerns, social benefits, and impression management	Journal	Behaviour & Information Technology

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
67	[116]	2018	Salehan, M., et al.	A study of the effect of social trust, trust in social networking services, and sharing attitude, on two dimensions of personal information sharing behavior	Journal	The Journal of Supercomputing
68	[117]	2018	Tsay-Vogel, M., et al.	Social media cultivating perceptions of privacy: A 5-year analysis of privacy attitudes and self-disclosure behaviors among Facebook users	Journal	New Media & Society
69	[118]	2018	Z. H, G. O. H., et al.	Regulation of Interpersonal Boundaries and its Effect on Self-Disclosure in Social Networking Sites	Conference	International Conference on Advanced Technologies for Communications
70	[119]	2018	Zhang, N., et al.	Self-disclosure in Social Network Sites: An Integration of Stimulus-Organism-Response Paradigm and Privacy Calculus Model	Conference	WHICEB
71	[120]	2019	Kroll, T. and S. Stieglitz	Digital nudging and privacy: improving decisions about self-disclosure in social networks	Journal	Behaviour & Information Technology
72	[121]	2019	Fianu, E., et al.	The Interplay Between Privacy, Trust and Self-disclosure on Social Networking Sites	Conference	Springer International Publishing
73	[122]	2019	Lankton, N. K., et al.	Understanding the Antecedents and Outcomes of Facebook Privacy Behaviors: An Integrated Model	Journal	IEEE Transactions on Engineering Management
74	[123]	2019	Li, P., et al.	Unpacking the process of privacy management and self-disclosure from the perspectives of regulatory focus and privacy calculus	Journal	Telematics and Informatics
75	[124]	2019	Lin, S. and D. Armstrong	Beyond Information: The Role of Territory in Privacy Management Behavior on Social Networking Sites	Journal	Journal of the Association for Information Systems
76	[125]	2019	Liu, C., Lwin, M. and Ang, R.	Parents' role in teens' personal photo sharing: A moderated mediation model incorporating privacy concern and network size	Journal	Makara Human Behavior Studies In Asia
77	[126]	2019	Liu, Z., et al.	How digital natives make their self-disclosure decisions: a cross-cultural comparison	Journal	Information Technology & People

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
78	[127]	2019	Liu, Z., et al.	The effect of role conflict on self-disclosure in social network sites: An integrated perspective of boundary regulation and dual process model	Journal	Information Systems Journal
79	[128]	2019	Nemec Zlatolas, L., et al.	A Model of Perception of Privacy, Trust, and Self-Disclosure on Online Social Networks	Journal	Entropy
80	[129]	2019	Oghazi, P., et al.	User self-disclosure on social network sites: A cross-cultural study on Facebook's privacy concepts	Journal	Journal of Business Research
81	[130]	2019	Sun, Y., et al.	Investigating privacy and information disclosure behavior in social electronic commerce	Journal	Sustainability
82	[131]	2019	Teubner, T. and C. M. Flath	Privacy in the sharing economy	Journal	Journal of the Association for Information Systems
83	[132]	2019	Wu, P. F.	The privacy paradox in the context of online social networking: A self-identity perspective	Journal	Journal of the Association for Information Science and Technology
84	[133]	2019	Zhang, S., et al.	Does more accessibility lead to more disclosure? Exploring the influence of information accessibility on self-disclosure in online social networks	Journal	Information Technology & People
85	[134]	2020	Li, Y., Rho, E. H. R. and Kobsa, A.	Cultural differences in the effects of contextual factors and privacy concerns on users' privacy decision on social networking sites	Journal	Behaviour & Information Technology
86	[135]	2020	Al-laymoun, O. H. and Aljaafreh, A.	Examining Users' Willingness to Post Sensitive Personal Data on Social Media	Journal	International journal of advanced computer science and applications
87	[136]	2020	Jacobson, J., et al.	Social media marketing: Who is watching the watchers	Journal	Journal of Retailing and Consumer Services
88	[137]	2020	Li, K., et al.	Voluntary sharing and mandatory provision: Private information disclosure on social networking sites	Journal	Information Processing & Management

Table A1. *Cont.*

Publication ID	Reference	Year	Authors	Title	Publication Type	Publisher
89	[138]	2020	Lin, X. and X. Wang	Examining gender differences in people's information-sharing decisions on social networking sites	Journal	International Journal of Information Management
90	[139]	2020	Mousavi, R., Chen, R., Kim, D. J. and Chen, K.	Effectiveness of privacy assurance mechanisms in users' privacy protection on social networking sites from the perspective of protection motivation theory	Journal	Decision Support Systems
91	[140]	2020	Trepte, S., et al.	The privacy calculus contextualized: The influence of affordances	Journal	Computers in Human Behavior
92	[141]	2020	Youn, S. and W. Shin	Adolescents' responses to social media newsfeed advertising: the interplay of persuasion knowledge, benefit-risk assessment, and ad scepticism in explaining information disclosure	Journal	International Journal of Advertising
93	[142]	2020	Zhang, R., and Fu, J. S.	Privacy Management and Self-Disclosure on Social Network Sites: The Moderating Effects of Stress and Gender	Journal	Journal of Computer-Mediated Communication
94	[143]	2020	Davazdahemami, B., Hammer, B., Kalgotra, P. and Luse, A.	From General to Situational Privacy Concerns: A New Mechanism to Explain Information Disclosure in Social Networks	Journal	Communications of the association for information systems
95	[144]	2021	Chung, K.-C., Chen, C.-H., Tsai, H.-H. and Chuang, Y.-H.	Social media privacy management strategies: A SEM analysis of user privacy behaviors	Journal	Computer Communications
96	[145]	2021	Ibrahim, M., Abdullah, A., Yulong, L., Maryah, A, and Fatmah Hussain, Q.	Gender Differentials on Information Sharing and Privacy Concerns on Social Networking Sites: Perspectives From Users	Journal	Journal of Global Information Management
97	[146]	2021	Sharif, A., Soroya, S. H., Ahmad, S. and Mahmood, K.	Antecedents of Self-Disclosure on Social Networking Sites (SNSs): A Study of Facebook Users	Journal	Sustainability
98	[147]	2021	Thompson, N. and Brindley, J.	Who are you talking about? Contrasting determinants of online disclosure about self or others	Journal	Information technology & people

Appendix B

Table A2. Scores for measurement parameters of the presented models.

Paper ID	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Sum of Scores
1	0	1	0	1	1	1	0	0	0	117	1	1	1		1	0	0	0	0	0.0	0.3	1	0	9.42
2	1	1	0	1	0	1	0	0	1	80	1	1	1	4.17	1	1	1	1	0	0.0	1.0	1	1	16.33
3	1	1	0	1	0	1	0	0	1	80	1	1	1	4.75	1	1	1	1	0	0.0	1.0	1	1	16.51
4	0	1	1	1	1	1	0	0	1	259	1	1	1	4.00	1	1	1	1	1	0.8	1.0	1	1	19.26
5	1	1	0	0	0	1	0	0	1	529	1	1	0		0	1	0	0	0	0.0	1.0	1	1	10.53
6	0	1	1	1	1	1	1	1	0	562	1	1	1	4.29	1	0	0	0	0	0.0	0.5	1	1	15.35
7	0	1	1	1	0	1	0	0	1	66	1	1	1	3.75	1	0	0	1	0	0.0	0.5	0	0	11.69
8	0	1	0	1	0	1	0	0	1	481	1	1	1	4.86	1	0	1	1	0	0.0	1.0	1	1	14.94
9	1	1	0	0	1	1	0	0	1	122	1	1	0		1	0	0	0	0	0.0	0.5	1	0	9.62
10	1	1	1	1	1	1	0	0	1	1628	1	1	1	7.25	1	1	1	1	0	0.0	1.0	1	1	20.80
11	1	1	1	1	0	1	0	0	1	222	1	1	1	3.00	1	1	1	0	0	0.0	1.0	1	0	15.12
12	1	1	1	1	1	1	0	0	1	138	1	1	1	4.80	1	1	1	0	0	0.0	0.5	1	0	16.08
13	0	1	1	0	1	1	0	0	0	207	1	1	1		0	1	1	1	0	0.0	0.5	1	0	11.71
14	0	1	0	1	0	1	0	0	1	364	1	1	1	3.60	0	0	0	1	1	0.6	1.0	1	0	13.04
15	1	1	0	1	1	1	0	0	1	368	1	1	1	3.22	1	1	1	1	0	0.0	1.0	1	1	17.33
16	0	1	1	1	0	1	0	0	1	222	1	1	1	3.17	1	1	1	0	0	0.0	1.0	1	1	15.17
17	1	1	1	1	0	1	0	0	1	222	1	1	1	3.25	1	1	1	0	0	0.0	1.0	1	0	15.20
18	1	0	1	1	1	1	0	0	0	246	1	1	1	4.25	1	0	0	0	1	0.8	1.0	1	1	15.32
19	0	1	1	1	1	1	0	0	1	653	1	1	1	3.25	1	1	1	1	1	1.0	1.0	1	1	19.63
20	0	1	1	1	0	1	0	0	1	780	1	1	1	3.00	1	0	0	1	1	0.8	1.0	1	0	15.48
21	0	1	0	1	0	1	0	0	1	486	1	1	1	4.33	0	1	1	1	0	0.0	1.0	1	1	14.79
22	0	1	0	1	1	1	0	0	1	718	1	1	0		0	0	0	0	0	0.0	0.5	1	0	9.22
23	1	1	0	0	1	1	0	0	1	171	0	0	1	3.86	1	0	1	1	1	0.8	1.0	1	0	14.13
24	0	1	0	1	0	1	0	0	1	210	0	0	1	6.00	1	0	1	1	1	0.8	1.0	1	0	13.81
25	1	1	0	1	1	1	0	0	1	675	1	1	1	4.17	1	1	1	0	1	0.8	1.0	1	0	17.73
26	0	1	1	1	1	1	0	0	1	192	0	1	1	3.00	1	0	0	1	1	0.2	0.5	1	0	13.79
27	1	1	1	1	1	1	0	0	1	305	1	1	1	5.43	0	1	1	1	1	0.8	1.0	1	0	18.73
28	0	1	0	1	0	1	0	0	0	638	1	1	1	4.00	1	1	1	1	0	0.0	1.0	1	1	14.84
29	1	1	0	1	0	1	0	0	1	927	1	0	1	3.44	1	1	1	1	1	0.8	1.0	1	1	17.76
30	1	1	0	0	0	1	0	0	1	2739	1	1	1	4.17	1	0	0	0	1	0.8	1.0	1	0	15.79
31	1	1	0	1	0	1	0	0	0	514	0	0	1	3.00	1	0	0	0	1	0.2	0.5	1	1	11.11
32	0	1	1	1	0	1	0	0	1	170	1	0	1	3.29	1	1	1	1	1	0.8	1.0	1	1	16.96
33	0	1	0	1	1	1	0	1	1	515	0	0	1	2.60	0	0	0	0	1	0.4	1.0	1	0	11.70
34	0	1	0	1	0	1	0	0	1	405	1	1	1	3.50	0	1	1	1	0	0.0	1.0	1	1	14.46
35	0	1	0	1	0	1	0	0	1	220	1	1	1	2.67	1	1	1	1	1	0.8	1.0	1	1	16.82
36	0	1	0	1	1	1	0	0	1	1116	1	1	1	3.33	1	0	0	0	0	0.0	0.5	1	1	13.62
37	1	1	0	1	1	1	0	0	0	246	1	1	1	4.25	1	0	0	0	1	0.8	1.0	1	1	15.32

Table A2. *Cont.*

Paper ID	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Sum of Scores
39	1	1	1	1	1	1	0	0	1	661	1	1	1	3.71	1	1	1	1	1	1.0	1.0	1	1	20.78
38	1	1	0	1	0	1	0	0	1	362	1	1	1	3.83	1	1	1	1	1	1.0	1.0	1	1	18.51
40	1	1	1	1	1	1	0	0	1	273	1	1	1	5.60	1	1	1	1	1	1.0	1.0	1	0	19.95
41	1	1	0	1	1	1	1	1	1	528	1	1	1		1	0	0	0	1	0.6	1.0	1	0	16.13
42	1	1	0	1	1	1	1	0	1	1156	1	1	1	6.00	1	1	1	0	1	0.6	1.0	1	0	19.56
43	0	1	1	1	0	1	0	1	1	405	1	1	1	3.80	1	1	1	1	0	0.0	1.0	1	1	17.55
44	0	1	0	1	1	1	0	0	1	1564	1	1	1	4.20	1	0	0	1	0	0.0	1.0	1	1	15.82
45	1	1	0	1	0	1	0	0	1	380	1	1	1	3.43	1	1	1	1	0	0.0	1.0	1	1	16.41
46	0	1	1	1	1	1	0	1	1	103	1	1	1	8.00	0	0	0	0	0	0.0	1.0	1	0	14.50
47	1	1	1	1	1	1	0	0	1	291	1	1	1	2.78	1	1	1	1	1	1.0	1.0	1	1	20.12
48	0	1	1	1	1	1	0	0	1	727	1	1	1	4.13	1	1	1	1	1	1.0	1.0	1	1	19.96
49	0	1	0	1	1	1	0	0	1	378	1	1	1	4.50	1	1	1	1	0	0.0	0.5	1	1	16.23
50	1	1	0	1	0	1	0	0	1	396	1	1	1	4.00	1	1	1	1	1	1.0	1.0	1	1	18.60
51	0	1	1	1	1	1	0	0	1	476	1	1	1	3.44	1	1	1	1	0	0.0	0.5	1	0	16.01
52	1	1	0	1	0	1	0	0	0	327	1	1	1	2.86	0	1	1	1	0	0.0	1.0	1	1	14.18
53	1	1	0	0	1	1	0	0	1	298	1	1	1	3.00	0	1	1	1	0	0.0	1.0	1	0	14.20
54	1	1	1	1	0	1	0	0	1	222	1	1	1	5.00	1	0	1	1	1	0.8	1.0	1	0	17.52
55	1	1	0	1	0	1	0	0	1	537	1	1	1	3.38	1	1	1	0	1	0.6	1.0	1	1	17.15
56	1	1	1	1	0	1	0	0	1	1121	1	1	1	4.17	1	1	1	1	0	0.0	1.0	1	0	17.37
57	1	1	0	1	0	1	0	0	1	364	1	1	1	4.18	1	1	1	1	0	0.0	1.0	1	1	16.62
58	1	1	0	1	0	1	0	0	1	432	1	1	1	6.11	0	0	0	1	0	0.0	0.5	1	0	12.77
59	0	1	0	1	0	1	0	0	1	314	1	1	1	5.29	0	1	1	1	0	0.0	1.0	1	1	14.90
60	1	1	0	1	0	1	0	0	1	1550	1	1	1	2.00	1	0	0	1	1	0.6	1.0	1	0	15.75
61	1	1	1	1	0	1	0	0	1	913	1	1	1	3.44	0	1	1	1	1	0.8	1.0	1	1	18.75
62	1	1	0	1	1	1	0	1	1	3085	0	1	1	5.17	0	0	0	0	0	0.0	0.5	1	0	15.14
63	1	1	0	1	0	1	0	0	1	831	1	1	1	4.21	1	1	1	1	0	0.0	0.5	1	1	16.60
64	1	1	0	1	0	1	0	0	1	606	1	0	1	2.57	1	0	0	0	0	0.0	0.5	1	0	10.88
65	1	1	0	1	1	1	0	0	1	326	1	1	1	4.86	1	1	1	1	1	1.0	1.0	1	1	19.78
66	0	1	1	0	0	1	0	0	1	244	1	1	1	4.43	1	1	1	1	1	0.6	1.0	1	1	17.17
67	1	1	0	1	0	1	0	0	1	117	0	1	1	5.17	1	1	1	1	0	0.0	1.0	1	1	15.67
68	0	1	0	1	1	1	0	0	1	2789	1	1	1	4.33	1	0	0	0	1	0.6	1.0	1	0	16.69
69	0	1	0	1	1	1	0	0	1	454	1	1	1	3.75	1	0	1	1	1	0.6	1.0	1	0	16.18
70	1	1	1	1	0	1	0	0	1	210	1	1	1	3.13	1	1	1	1	1	1.0	1.0	1	0	18.15
71	1	1	0	1	1	1	0	0	1	382	1	1	1	3.80	1	0	0	0	0	0.0	0.5	1	0	13.02
72	1	1	0	1	0	1	0	0	1	452	0	0	1	4.71	1	1	1	1	0	0.0	0.5	1	0	13.37
73	1	1	0	1	1	1	1	1	1	305	1	1	1	5.13	1	1	1	1	0	0.0	0.5	1	0	18.34
74	1	1	0	1	1	1	1	0	1	525	1	1	1	3.43	1	0	1	1	1	0.6	1.0	1	0	18.15
75	1	1	1	1	0	1	0	0	1	168	1	1	1	5.78	1	1	1	1	1	0.6	1.0	1	1	19.50
76	0	1	0	1	0	1	0	0	0		0	0	0		1	0	0	0	0	0.0	1.0	1	0	6.00

Table A2. *Cont.*

Paper ID	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	Sum of Scores
39	1	1	1	1	1	1	0	0	1	661	1	1	1	3.71	1	1	1	1	1	1.0	1.0	1	1	20.78
77	0	1	0	1	0	1	0	0	1	473	1	1	1	4.22	1	1	1	1	0	0.0	1.0	1	1	15.74
78	0	1	1	1	0	1	0	0	1	110	1	1	1	3.50	1	0	0	1	0	0.0	1.0	1	1	14.16
79	1	1	1	1	0	1	0	0	1	602	1	1	1	3.33	1	1	1	1	1	0.8	1.0	1	1	19.40
80	0	1	1	1	0	1	0	0	1	419	1	1	0		0	0	0	0	0	0.0	0.5	1	0	8.92
81	1	1	0	0	0	1	0	0	1	406	1	1	1	3.50	1	1	1	1	1	1.0	1.0	1	1	17.46
82	1	1	0	1	0	1	0	0	0	237	1	1	1	3.00	1	1	1	1	0	0.0	1.0	1	1	15.14
83	1	1	1	1	0	1	0	0	1	249	1	1	1	3.71	1	1	1	1	1	0.2	1.0	1	1	18.56
84	0	1	1	1	0	1	0	0	1	213	0	1	1	4.60	1	1	1	1	0	0.0	1.0	1	1	15.59
85	0	1	0	1	1	1	0	0	1	1159	1	1	1	4.86	0	0	1	1	1	0.6	1.0	1	0	16.22
86	0	1	1	1	1	1	0	0	1	515	1	1	1	3.57	1	1	1	1	0	0.0	1.0	1	1	17.59
87	0	1	1	1	1	1	1	0	1	751	1	1	1	3.38	0	1	1	1	0	0.0	1.0	1	0	16.77
88	1	1	0	0	0	1	1	1	0	310	1	1	1	2.75	1	1	1	1	0	0.0	1.0	1	0	15.14
89	1	1	1	1	0	1	0	0	1	405	0	1	1	3.57	1	1	1	1	0	0.0	1.0	1	1	16.48
90	1	1	0	1	0	1	0	0	1	315	1	1	1	4.11	1	1	1	1	0	0.0	1.0	1	1	16.55
91	1	1	0	1	0	1	0	0	1	128	1	1	1	3.50	0	0	0	0	1	0.6	1.0	1	0	12.78
92	1	1	0	1	0	1	0	0	1	305	1	0	1	5.20	0	0	0	1	1	0.8	1.0	1	0	13.67
93	1	1	0	1	1	1	1	1	1	556	1	1	1	2.71	1	1	1	0	1	0.6	1.0	1	0	18.97
94	1	1	1	0	0	1	0	0	1	180	1	1	1	4.33	1	1	1	1	0	0.0	1.0	1	1	16.48
95	1	1	1	0	0	1	0	0	0	397	1	1	1	5.17	1	1	1	1	0	0.0	1.0	1	1	15.95
96	0	1	1	1	0	1	0	0	1	412	0	1	1	3.40	1	1	1	1	1	0.8	1.0	1	1	17.23
97	1	1	0	1	1	1	0	0	1	400	1	1	1	4.17	1	1	1	1	0	0.0	1.0	1	1	17.65
98	0	1	0	1	1	1	0	0	0	216	1	1	1	4.20	0	1	1	1	0	0.0	1.0	1	1	14.48

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