

A META-ANALYSIS ON FACTORS INFLUENCING STUDENT SATISFACTION IN HIGHER EDUCATION

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Abstract

No single factor explains satisfaction among university students; there are a range of personal, social and institution specific factors. This meta-analysis summarizes the predictors of student satisfaction in higher education. The results will help clarify the existing researches on student satisfaction and identify the strongest predictors associated with satisfaction. As the Student Satisfaction studies were strengthened after 1980s, the search period of the relevant studies covered from 1990 to November 2018. The following search engines were consulted: Google, Eric, Academia and Google Scholar. To be included in the meta-analysis, each study had to fulfill the following criteria: (a) to be an empirical study where the necessary data to calculate the effect size were provided; (b) the study had to be conducted in higher education setting; (c) the paper had to be written in English; (d) samples of participants from normal population were accepted; and (e) the paper had to be published. The search yielded a total of 1147 references, out of which 1056 were removed step by step via selection criteria. Therefore, the total of 91 studies remained for the present meta-analysis. By reviewing these related studies, about 148 factors are found as influencing factors on student satisfaction in higher education. The data of the remaining studies were analyzed by Meta-Essentials. Among the different personal factors, self-efficacy, motivation and college experience were found to be the strongest predictors of student satisfaction. Among the instructional factors, courses, learning environment, and teaching and instruction were the strongest factors. Among the social factors, social presence and student-teacher relation were found to have the strongest effect on student satisfaction. Among the university factors, service quality, cost and reputation were the strongest predictors of student satisfaction. Among the outcome-related factors, job prospects and skills developed were the strongest predictors of student satisfaction.

Keywords: Meta-analysis, Meta-Essentials, Student Satisfaction

Introduction

Every human being needs to develop five main Capitals to survive: Human Capital, Social Capital, Natural Capital, Physical Capital and Financial Capital (Crook, 2001). To accumulate these Capitals, Education development plays a main role, especially it increases the capability, knowledge and employment opportunities which lead to Human Capital and consequently it could reduce the poverty rate with integrating and utilizing other Capitals. Therefore, in order to build up a nation with powerful human resources, education development should be created.

Institutions for higher education nowadays are confronted with a number of complex, educational difficulties. Meeting the educational needs of students and increasing retention and throughput rates is an important challenge for higher education. To cope with these challenges, institutions for higher education should devote great attention to the quality of institutions and to the support of students. With this higher education sector becoming increasingly competitive, university student satisfaction has become an important component of quality assurance.

McCann (2017) points out that more than two thirds of students studying some degrees at the UK's biggest universities are dropping out after first year. Middlesex and Wrexham both offered courses which had drop-out rates of 67 per cent, including human resource management

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and marketing and consumer psychology respectively. Therefore, recruiting students and preserving current students become a great challenge for higher education universities.

Many factors can influence the choice of a university by the students and also students' decisions to persist in their universities. Among them, university students' satisfaction is important to institutional success in that effective institutions have satisfied students because this satisfaction supports the enrollment of additional students and persistence of existing students. As a result, most universities around the world are constantly looking at how to improve the satisfaction of students at their institution.

Student Satisfaction is the extent to which a student's perceived educational experience meets or exceeds his or her expectations, measured as gaps between students' expectations and perceived reality (Schreiner & Juillerat, 1994). College student satisfaction refers to the level of enjoyment or realization of a requirement, aspiration, or expectation involving the college experience (Astin, 1993).

Clearly, the satisfaction of students with their studies is central to the success of the sector. From an institutional point of view, satisfied students are more likely to continue in their studies (retention) and are more likely to succeed academically and this is likely to enhance the financial position and reputation of the institution. The study of student satisfaction allows institutions to be attentive and responsive to the needs and desires of students. According to Low (2000), the capacity to continually measure and respond to student experiences will generate institutions that are adaptable and capable of thriving in a new and unknown era for higher education.

Student satisfaction has the powerful utility value for universities along the history. In 1996, satisfaction is noted as a useful tool in increasing retention and thus enrollment (Upcraft & Schuh). Additionally, Low (2000) argues that the construct also indicates effectiveness and vitality of an institution. Still others point to satisfaction as a mitigating influence on student motivation (Thomas & Galambos, 2004). Recruitment and retention have also been found to be positively related to satisfaction (Elliot & Shin, 2002; Tinto, 1993). In 2009, Goho and Blackman contend that student satisfaction can serve as an indicator of both educational and overall quality of an institution. Therefore, utility of this construct can be readily seen in the area of quality development of universities.

Obviously, college student satisfaction and success have received decades of attention due to their importance and possible interconnections. Research on student satisfaction has ranged across topics from individual and environmental influences on satisfaction (e.g., Hatcher et al., 1992; Keup, 1999) to predictors and outcomes of satisfaction (e.g., Bean & Vesper, 1994; Hull-Toye, 1995; Keup, 2007).

In this time of reforming Myanmar higher education, there is a need of researches in the field of university student satisfaction, the prestigious quality of higher education institutions. The administrators and policy makers should consider factors affecting on university student satisfaction in implementing higher education development plans. So, this research will explore how to get this necessary quality of higher education institutions and universities.

No single factor can explain satisfaction among university students; there are a range of personal, financial, social and institution specific factors. There are many factors external to the institution which may cause satisfaction among students and disruption to their education such as

serious illness, financial problems or family issues (Thompson & Prieto, 2013; Osman et al., 2010, cited in Sweeney, 2016). Health variables such as smoking and alcohol (Cox, 2009), student motivation, effort and anxiety about their personal ability (Sargent, Borthick & Lederberg, 2011, cited in Sweeney, 2016) have been shown to impact student satisfaction and retention.

By reviewing the literature, it can be seen that there are two types of student satisfaction models: structural and process. Structural models describe and organize the facets or dimensions of student satisfaction. Then, the process models explain or partially explain the causes and consequences of college student satisfaction. These student satisfaction models fall into many categories, including fit models, cognitive models, legitimating models, ecological models as well as some models focusing on only one aspect of satisfaction (Bean & Bradley, 1986; Pike, 1991).

According to Witt and Handal's (1984) person-environment fit theory of student satisfaction, environment and individual personal characteristics were predictors of student satisfaction.

As a cognitive model of student satisfaction, Okun and Weir's (1990) judgment model of college satisfaction also takes into consideration the moderation effects of attenuation and memory at all stages based on the idea that students who had a recent memory of a positive event had a higher life satisfaction.

The legitimating models view satisfaction as resulting from the opportunities that a student's degree will give him or her. In Bean and Bradley's (1986) model, institutional fit, academic integration, utility, academic difficulty, social life, memberships, and class level were expected to influence satisfaction.

As another approach, Benjamin and Hollings (1995) used the Quality of Student Life approach to argue for an ecological theory of satisfaction. They found that two areas of satisfaction were life satisfaction and campus satisfaction and that if students were satisfied with one aspect, they were mostly satisfied with the other area.

By reviewing the above theories, it can be found that many factors are affecting on student satisfaction of university students. Like this, many other researchers have explored different factors for student satisfaction. Since these predicting factors are different across studies, there becomes a need for synthesizing the previous literature of student satisfaction, with the aim of exploring consistent factors for student satisfaction. So, this study will explore factors affecting on student satisfaction of university students via meta-analysis study.

Meta analysis refers to a process of integration of the results of many studies to arrive at evidence synthesis (Normand, 1999). It is a method for systematically combining pertinent qualitative and quantitative data from several selected studies to develop a single conclusion that has greater statistical power. This conclusion is statistically stronger than the analysis of any single study, due to increased numbers of subjects, greater diversity among subjects or accumulated effects and results.

This meta-analysis summarizes the predictors of student satisfaction in the field of higher education. The results will help clarify the existing research on student satisfaction and identify

the predictors that are most strongly associated with different aspects of satisfaction, as well as help determine which theories of student satisfaction are most plausible.

Aim of the Study

The main aim of this study was to examine the factors influencing student satisfaction in higher education via meta-analysis studies.

Materials and Methods

Selection Criteria of the Studies

To be included in the meta-analysis, each study had to fulfill the following criteria: (a) to be an empirical study where the necessary data to calculate the effect size were provided; (b) the study had to be conducted in higher education setting; (c) the paper had to be written in English; (d) samples of participants from normal population were accepted; and (e) the paper had to be published.

Searching for the studies

As the Student Satisfaction studies were strengthened after 1980s, the search period of the relevant studies covered from 1990 to November 2018, both included. The following search engines were consulted: Google, Eric, Academia and Google Scholar. In the electronic searches, the keywords “Factors Influencing Student Satisfaction in higher education”, “Factors affecting on Student Satisfaction in higher education”, “Determinants of Student Satisfaction in higher education”, and “Antecedents of Student Satisfaction in higher education” were used to be found in the full-text of the documents. In addition, the references of the studies retrieved were also checked in order to identify additional studies that might fulfill the selection criteria.

Data Extraction

To explore how study characteristics can affect the relationships among the factors and the study variable, a protocol was produced with guidelines on how to code substantive, methodological, and extrinsic characteristics of the studies. The following substantive variables were coded: mean and *SD* of the age (in years), gender distribution of the sample (% male), target population (undergraduate, post-graduate students and both) / (traditional, international and online students), and geographic location of the study (country). Regarding methodological characteristics, the following were extracted: research method (survey, case study, review, vs. experimental), and sample size. Two additional extrinsic variables were also coded: year of the study and type of study (single institution, multiple institutions and national studies).

Data Entry

The data were carefully entered from the coding sheets into an Excel spreadsheet. All the articles were double-checked for accuracy of coding and data entry. The data were then sorted to insure that there were no duplicate entries and that there were not two studies by the same author that might potentially contain the same data.

Table 1 Example of Coding Sheet

Author	Year	Age	Gender	Population	Country	Study	Sample Size	Method	Factor
Ntabathia	2013	20.4	37%	1	5	2	118	1	Service Quality (r=.59)
Dobler, et. al.	2013	21	39%	1	7	1	206	1	Reputation (r=.60)
Solinas, et. al.	2011	21.7	40%	1	3	1	403	1	Gender (d=.26)

Selection Process of the Studies

Figure 1 shows a flowchart describing the selection process of the studies. The search yielded a total of 1147 references, out of which 285 were removed because of duplicate studies. The remaining 862 references were checked by screening their titles and abstracts. Since 511 studies were irrelevant with the present study, the full texts of the remaining 351 studies were assessed for eligibility via selection criteria.

Out of the 351 studies, 260 studies were excluded for not meeting the above mentioned selection criteria. In particular, they were excluded because (a) some studies lacked necessary data to calculate effect size (n=156), (b) some studies were not written in English (n=7), (c) some studies did not include the clear methodology section (n=36), (d) some studies did not present the type of samples (n=5), (e) some studies intended for high school level (n=32), and some for free online class (n=16), and (f) some studies were unpublished doctoral dissertations (n=3) and master theses (n=5). Therefore, the total of 91 studies remained for the present meta-analysis studies.

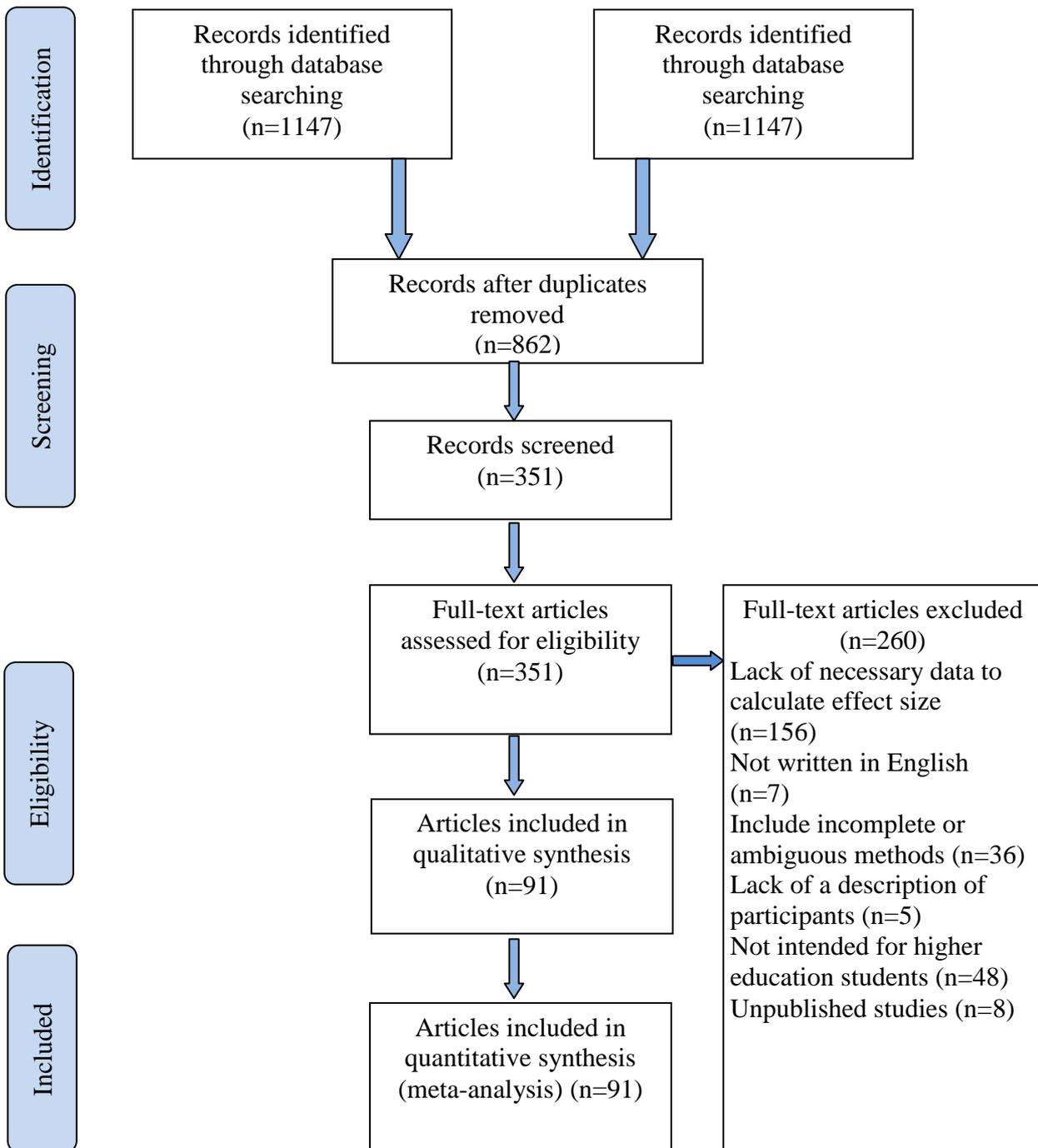


Figure 1 A Flowchart Showing the Selection Process of Studies for the Present Meta-analysis

Selecting the Factors to be included in Meta-analysis

By reviewing the selected studies, about 148 factors are found as influencing factors on student satisfaction in higher education. To be obvious, commonly found factors will be summarized into five groups of factors: Personal factors, Instructional factors, Social factors, University factors and Outcome-related factors. Among these five groups of factors, factors with at least 5 studies were selected to be included in the current meta-analysis studies. Totally 24 factors were included to analyze in the present meta-analysis.

Table 2 Factors to be Included in this Meta-analysis Study

Personal	Instructional	University	Social	Outcomes
Gender	Courses	Service quality	Safe at School	Job Prospects
Age	Learning Environment	Cost	Social Presence	Skills
Self-efficacy	Teaching & instruction	Reputation	Student-teacher relation	developed
Motivation	Assessment	Facilities	Student-student relation	
College experience	Teachers' Support	Technology		
	Disturbance in Class			
	Students' Support			
	Collaborative Learning			
5 Factors	8 Factors	5 Factors	4 Factors	2 Factors

Statistical Analysis

Separate meta-analyses were conducted for the selected factors from the review. Thus, a total of 24 meta-analyses were accomplished. In all cases, random-effects models were assumed in the statistical calculations (Borenstein, Hedges, Higgins, & Rothstein, 2009). In each meta-analysis, an average effect size and a 95% confidence interval were calculated with the improved method proposed by Hartung (Sánchez-Meca & Marín-Martínez, 2008).

In each meta-analysis, the heterogeneity of the correlation coefficients was investigated by constructing a forest plot and by calculating the *Q* statistic and the *I*² index. *I*² values about 25%, 50%, and 75% can be interpreted as reflecting low, moderate, and large heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). When the effect size exhibited heterogeneity, then sub-group analysis and moderator analyses were performed in order to identify the study characteristics statistically associated to the effect size. All statistical analyses were carried out with the programs *Meta-essentials* (Rhee, Suurmond & Hak, 2015).

Forest plots that show the dispersion of effect sizes and accompanying prediction intervals which express this dispersion are key to state-of-the-art meta-analysis (Hak et al., 2016; Kiran et al., 2017; Riley et al., 2011: cited in Suurmond, Rhee & Hak, 2017). The prediction interval offers “a convenient format for expressing the full uncertainty around inferences, since both magnitude and consistency of effects may be considered” (Higgins, Thompson, Spiegelhalter, 2009: cited in Suurmond, et. al., 2017). *Meta-Essentials* provides the prediction interval by default and automatically includes it in the forest plot.

Results and Discussion

Personal Factors Influencing Student Satisfaction in Higher Education

Table 3 Mean Effect Size, 95% Confidence Intervals, and Significance Level for the Personal Factors

Factors	N	k	r/g	95% CI		p	Q	I ²
				LL	UL			
Gender	6896	6	0.08	-0.07	0.22	.18	8.11	38.31%
Age	1763	6	0.05	-0.11	0.21	.595	64.8	92.28%
Self-efficacy	2629	10	0.41	0.31	0.50	.000	89.67	89.96%
Motivation	1955	6	0.43	0.25	0.58	.000	178.23	97.19%
College experience	6512	6	0.44	0.33	0.53	.000	102.87	95.14%

Note: N= total number of participants, k=number of studies, r/g=mean effect sizes for correlation and difference, LL and UL =lower and upper limits of the 95% confidence intervals; Q=Cochran’s heterogeneity Q statistic; I²=heterogeneity index, p=significance level.

From this analysis on personal factors, it can be found that the average effect of gender and age on student satisfaction is positive ($g = 0.08$) and ($r=0.05$) respectively and that the confidence intervals overlap with zero, thus our hypothesis is rejected. For gender, the effect sizes are nearly homogeneous and between-study variability is low in the data ($I^2 = 38.31\%$); the prediction interval shows that the next study result is likely to find an effect size between -0.07 and $+0.22$. For age, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 92.28\%$); the prediction interval shows that the next study result is likely to find an effect size between -0.11 and $+0.21$. Therefore, it can be concluded that gender and age may not influence student satisfaction in higher education.

Then, self-efficacy, motivation and college experience were found to have positive effects on student satisfaction with average correlation coefficients of $+0.41$, $+0.43$ and $+0.44$ respectively, and their confidence intervals do not overlap with zero, thus the proposed hypotheses were not rejected. For self-efficacy, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 89.96\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.31$ and $+0.50$. For motivation, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 97.19\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.25$ and $+0.58$. For college experience, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 95.14\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.33$ and $+0.53$. Therefore, it can be concluded that self-efficacy, motivation and college experience may influence student satisfaction in higher education.

Instructional Factors Influencing Student Satisfaction in Higher Education

Table 4 Mean Effect Size, 95% Confidence Intervals, and Significance Level for the Instructional Factors

Factors	N	k	r/g	95% CI		p	Q	I ²
				LL	UL			
Courses	7182	9	0.46	0.35	0.56	.000	110.41	92.75%
Learning Environment	1363	6	0.51	0.36	0.63	.000	53.26	90.61%
Teaching & Instruction	9009	12	0.56	0.48	0.63	.000	190.59	94.23%
Assessment	6974	6	0.28	0.09	0.45	.015	328.07	98.48%
Teachers' Support	16955	6	0.37	0.34	0.39	.000	37.88	86.8%
Disturbance in Class	15917	5	-0.18	-0.21	-0.14	.000	33.87	88.19%
Students' Support	16503	6	0.3	0.19	0.40	.000	70.94	92.95%
Collaborative Learning	892	5	.43	.31	.54	.000	26.81	88.81%

From this meta-analysis on instructional factors, the average effects of all instructional factors on student satisfaction are positive and the confidence intervals does not overlap with zero, thus all the instructional factors influence on student satisfaction.

Among these factors, learning environment and teaching and instruction have large positive effect on student satisfaction ($r=+0.51$ & $r=+0.56$) respectively. For learning environment, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 90.61\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.36$ and $+0.63$, which is quite a broad range. For teaching and instruction, the effect sizes are not homogeneous and between-study variability is present in the data

($I^2 = 94.23\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.48 and +0.63.

Then, courses, teachers' support and student's support have moderate positive effect on student satisfaction ($r=+0.46$, $r=+0.37$ & $r=+0.3$) respectively. For courses, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 92.75\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.35 and +0.56. For teachers' support, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 86.80\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.34 and +0.39. For students' support, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 92.95\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.19 and +0.40, which is quite a broad range.

Next, assessment had a small positive effect on student satisfaction ($r=+0.28$). The effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 98.48\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.09 and +0.45, which is quite a broad range.

Finally, disturbance in class has small negative effect on student satisfaction ($r=-0.18$). Its effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 88.19\%$); the prediction interval shows that the next study result is likely to find an effect size between -0.21 and -0.14.

University Factors Influencing Student Satisfaction in Higher Education

Table 5 Mean Effect Size, 95% Confidence Intervals, and Significance Level for the University-related Factors

Factors	N	k	r/g	95% CI		p	Q	I ²
				LL	UL			
Service Quality	3919	13	0.63	0.52	0.72	.000	532.15	97.74%
Cost	2164	6	0.64	0.54	0.72	.000	83.53	94.01%
Reputation	2850	8	0.59	0.54	0.64	.000	33.74	79.25%
Facilities	9095	8	0.17	0.05	0.28	.001	89.11	92.14%
Technology	1208	5	0.34	0.21	0.46	.000	17.69	77.39%

From this meta-analysis on university factors, the average effects of all university factors on student satisfaction are positive and the confidence intervals does not overlap with zero, thus the hypotheses are supported.

Among these factors, service quality, cost and reputation have large positive effect on student satisfaction ($r=+0.63$, $r=+0.64$ & $r=+0.59$) respectively. For service quality, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 97.74\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.52 and +0.72. For cost, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 94.01\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.54 and +0.72. For reputation, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 79.25\%$); the prediction interval shows that the next study result is likely to find an effect size between +0.54 and +0.64.

Then, technology has moderate positive effect on student satisfaction ($r=+0.34$). Its effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 77.39\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.21$ and $+0.46$.

Unfortunately, university facilities have small positive effect on student satisfaction ($r=+0.17$). The effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 92.14\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.05$ and $+0.28$.

Social Factors Influencing Student Satisfaction in Higher Education

Table 6 Mean Effect Size, 95% Confidence Intervals, and Significance Level for the Social Factors

Factors	N	k	r/g	95% CI		p	Q	I ²
				LL	UL			
Safe at school	15801	5	0.34	0.25	0.42	.000	59.26	93.25%
Social Presence	923	5	0.45	0.33	0.56	.000	20.18	80.17%
Student-teacher Relation	2213	7	0.47	0.37	0.57	.000	90.57	93.38%
Student-student Relation	2328	5	0.25	0.21	0.29	.000	5.59	32.76%

From this meta-analysis on social factors, the average effects of all social factors on student satisfaction are positive and the confidence intervals does not overlap with zero, thus the hypotheses are supported.

Among these factors, safe at school, social presence and student-teacher relation have moderate positive effect on student satisfaction ($r=+0.34$, $r=+0.45$ & $r=+0.47$) respectively. For safe at school, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 93.25\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.25$ and $+0.42$. For social presence, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 80.17\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.33$ and $+0.56$. For student-teacher relation, the effect sizes are not homogeneous and between-study variability is present in the data ($I^2 = 93.38\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.37$ and $+0.57$.

Then, student-student relation has small positive effect on student satisfaction ($r=+0.25$). Its effect sizes are homogeneous and between-study variability is low in the data ($I^2 = 32.76\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.21$ and $+0.29$.

Outcomes-related Factors Influencing Student Satisfaction in Higher Education

Table 7 Mean Effect Size, 95% Confidence Intervals, and Significance Level for the Outcomes-related Factors

Factors	N	k	r/g	95% CI		p	Q	I ²
				LL	UL			
Job Prospects	6250	5	0.50	0.29	0.67	.000	162.48	97.54%
Skills Developed	2656	5	0.39	0.25	0.52	.000	96.11	95.84%

For outcome-related factors, the effects of both job prospects and skills developed on student satisfaction are positive but the effect of job prospects is large ($r=0.5$) and the effect of skills developed is moderate ($r=0.39$) according to Cohen (1988). Their confidence intervals do not overlap with zero, thus the hypotheses are not rejected. For job prospects, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 97.54\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.29$ and $+0.67$. For skills developed, the effect sizes are heterogeneous and between-study variability is present in the data ($I^2 = 95.84\%$); the prediction interval shows that the next study result is likely to find an effect size between $+0.25$ and $+0.52$. Therefore, it can be concluded that job prospects and skills developed may influence student satisfaction in higher education.

Conclusion

Every university wants to retain their students and to have them perform well; therefore, it is important to consider the relationship between satisfaction and the predictor variables. The results of this meta-analysis identify possible predictors of student satisfaction that have a strong relationship with satisfaction, where interventions should be targeted.

In this study, the researcher analyzed the quantitative results of 91 studies of student satisfaction, covering 165234 university students. These studies included both undergraduate and graduate students, with the mean age range of 19 to 23 years, from over 60 universities in over 45 nations. The years of study ranged from 1998 to 2018, so reflecting 20 years of duration.

By reviewing the selected studies, about 148 factors are found as influencing factors on student satisfaction in higher education. Among them, factors with five or above studies were selected to include in data analysis. So, 24 factors were selected and categorized into five groups of factors (Personal Factors, Instructional Factors, University Factors, Social Factors and Outcomes-related Factors) to investigate how much effect they have on student satisfaction.

As the results, self-efficacy, motivation and college experience were the most influencing personal factors for student satisfaction. Then, courses, learning environment and teaching and instruction were the most influencing factors on student satisfaction among instructional factors. Among the university factors, service quality, cost and reputation had the highest influence on student satisfaction. Among the social factors, student-teacher relation and social presence were the most influencing factors. Finally, job prospects and skills developed were found as the most influencing outcomes-related factors for student satisfaction. In order for universities to trigger their students' satisfaction to the highest degree, the above-mentioned factors should be considered in implementing their university functions.

Overall this study has helped clarify the existing researches on student satisfaction in higher education. Future researches can develop satisfaction interventions and determine which predictors of satisfaction are most easily manipulated, resulting in the largest gains in satisfaction. At a minimum, this study has confirmed that student satisfaction is a terribly important variable to consider in higher education and has important implications for intervention planning to improve retention. Additionally, this study helps provide evidence about which theories of college student satisfaction are plausible and should be investigated further.

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