Analysis of Higher Education Student Satisfaction Using Student Satisfaction Ratio Model

Poonam Singh 1, MSIT, MATS University, Raipur, India (poonam20phd@gmail.com)
Bhavana Narain 2, MSIT, MATS University, Raipur, India (narainbhawna@gmail.com)

Abstract

Higher Education of a country perform a significant role in our India to develop every sector as well as build the backbone of a nation by providing higher, Specialized and job oriented education to the young generation. At present, around 459 state University, and 56 central University in Indian government and University Grant Commission of India (UGC). Recently Indian Government and UGC have taken the biggest discussion to ensure the quality of education, organization criteria to create productive graduates, post graduates, and researchers. Student satisfaction is mostly biggest challenges for university, institute and colleges. Our work is solving this problem for java programing and WEKA to predict the result of a student satisfaction for administration, academic, and placement for five-year session (2017-2023). If student found not going to do well in the student traced administration, academic and placement satisfaction ratio for this college. Student our satisfaction ratio inters and vote the university, and college rating for NAAC grading. Higher education is the essential rights of our youth. Policies of higher education give performers and underperformers. Lots of studies are ongoing to evaluate policies and end products of higher education. In this work we have reviewed work and predicted the suggestions given by various authors. Machine learning play important role in analysis of data related to higher education. We have selected Random forest classification technique for our work. At last; we have set outcomes of our suggested work using machine learning technology.

Keywords

Data Mining, WEKA, Machine Learning, Student Satisfaction Ratio Model.

1. Introduction

Satisfaction is a feeling of happiness that obtain when a person fulfilled his or her needs and desires. Students' satisfaction as a short term attitude, resulting from an evaluation of a students' educational experiences. It is a positive antecedent of student loyalty and is the result and outcome of an educational system. Data mining is one of the popular analyzing tool for huge amount data for processing, classifying and extracting valuable and desire hidden knowledge **(Pang et al., 2005).** Data mining main goal is to discover knowledge from big data amount and transform it to an understandable structure for further use **(Dorina et al., 2013).** In real life activities, big data amount is stored in the databases. It is difficult job a university, college, and institute to discover knowledge from those big database **(Han et al., 2011**). Currently the big amount of data stored in education database contain the useful information for predict of student's performance. The most use full data mining techniques in education dataset is SSRM **(L. Gaurav et al., 2013).** The purpose of SSRM (Student Satisfaction Ratio Model) is to correctly predict the class label for panel in the data. The dataset in which the class assignment is known is needed for SSRM working process. A SSRM is generated by Random Forest algorithm **(Abeer et al., 2014).** This SSRM

those instances whose class label is not known. Data mining is also known as knowledge discovery for big amount of data.

Higher education is the education at a college, institute or university level is perceived as one of most important instruments for individual social and economic development of a Indian nation (**U. Mukhtar et al., 2015**). The primary purpose of higher education are creation of knowledge and dissemination for the development of world through innovation and creativity for student (**Escotet M. A., 2012, A. Fortino 2012**). As well, claimed creation of prepared minds of students as purpose of higher education. Hence, higher education institutions are increasingly recognizing and are academic, administration, and placing greater emphasis on meeting the expectations and needs of their customers, that is, the students (**Jr. Deshields et al., 2005**).

2. Related Work

(**Hoang Thai Son et.al. 2018**) This paper reviews the role of students' satisfaction and factors that may influence students' satisfaction and presents the empirical research with the case with University. Assessing satisfaction of male and female students. (**Diah Dharmayanti et.al.2018**), Discussed in paper Education sector in all over the world is now facing the demanding challenge which is about new innovation in providing education and qualitied environment. research analyzes the students' satisfaction, students' loyalty, competitive advantage, and financial sustainability. The results of this study show that: Student value creation has significant effect towards students' satisfaction. Students' satisfaction has significant effects towards students' loyalty. (**IM Salinda Weerasinghe et. al., 2017**), Discussed theoretical and empirical literature of higher education with the intension of enhancing existing stock of knowledge. The theoretical review proved that satisfaction is a psychological process and is affected by many factors in different settings. (**Heather J. Green et.al., 2015**), This research was funded by in this paper, we review the student satisfaction literature with a focus on undergraduate and Evidence regarding institutional, teaching, and student variables associated with student satisfaction is discussed. (**Qidong Cao et.al., 2014**), Discussed study addressed the research gap in synchronous interaction literature by focusing on Information Systems students and conducting a sequence of comprehensive quantitative data analyses. (**Nara M. Martirosyan et.al., 2014**), This research examined the relationship between student satisfaction and academic performance in Armenian higher education. Given that satisfaction promotes academic performance and improved outcomes, the research agenda and discourse should turn to the capacity of administrators to promote improved student satisfaction.

3. Student Satisfaction

Students' satisfaction ratio as a short term attitude, resulting from an evaluation of a students' educational experiences (**K. Elliot et al., 2001**). It is a positive antecedent of student loyalty for college and university (**K. Elliot et al., 2002**) and is the result and outcome of an educational system (**Zeithaml, 1988, Again Elliot et al., 2002**). define student satisfaction as students' disposition by subjective evaluation of educational outcomes and experience. Therefore, student satisfaction can be defined as a function of relative level of experiences and perceived performance about organization, academic, placement and educational service [39] during the study period, (**Carey, et al [10]**). By considering all, students' satisfaction can be defined as a short-term attitude resulting from an evaluation of students' educational experience, services and facilities for college

and university. Student satisfaction can be defined as a function of relative level of experiences and perceived performance about educational service during the study period. Satisfaction refers to the evaluation of a service and comprises cognitive, affective, and attitudinal components. Higher satisfaction is associated with consumer loyalty and positive effect, in research that has mostly tested cross-sectional associations. Therefore, institutional outcomes such as word-of-mouth recommendations, enrolment, and retention relate to student satisfaction; these associations are generally interpreted as indicating consequences of satisfaction but reciprocal relations are possible **(S. Aldridge et al., 1998)**

4.   Student Satisfaction Ratio Models and dataset

This section presents our model and framework applied by researcher to uplift students' satisfactions ratio in college, university academic, organization, and placement facility. The models and frameworks have been arranged identify how focus has changed from past to now. SSRM is a most important and widely used service quality model which has been applying to measure students' satisfaction ratio around the Raipur Chhattisgarh college and universities. SSRM is a questionnaire that has been designed, developed and tested in java environment. measure service quality and student satisfaction of a college and university taking three dimensions into consideration as administrative, academic, and placement **(F. R. Waugh, 2002)**. That questionnaire was administrated by three, one to water, second washroom, and third campus.
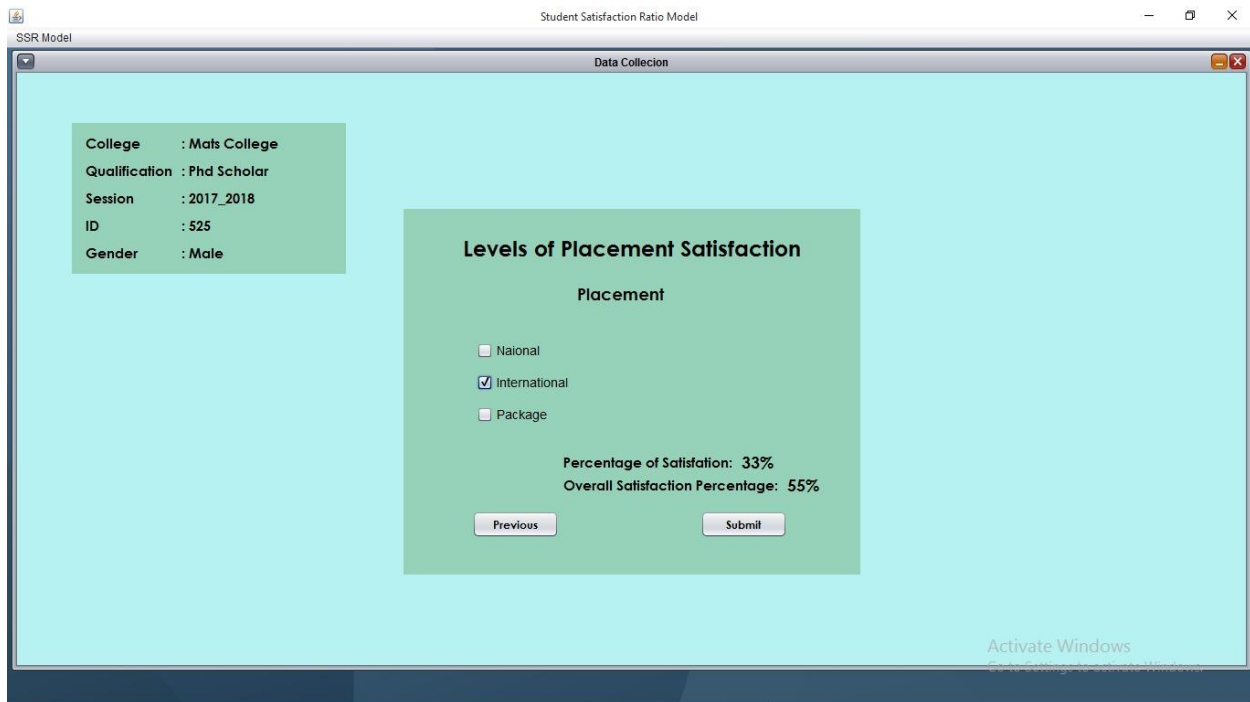

Fig. 1. Level of Administrative Satisfaction in Administrative panel

 That questionnaire was academic by three, one to teaching, second pedagogy, and third holistic education.
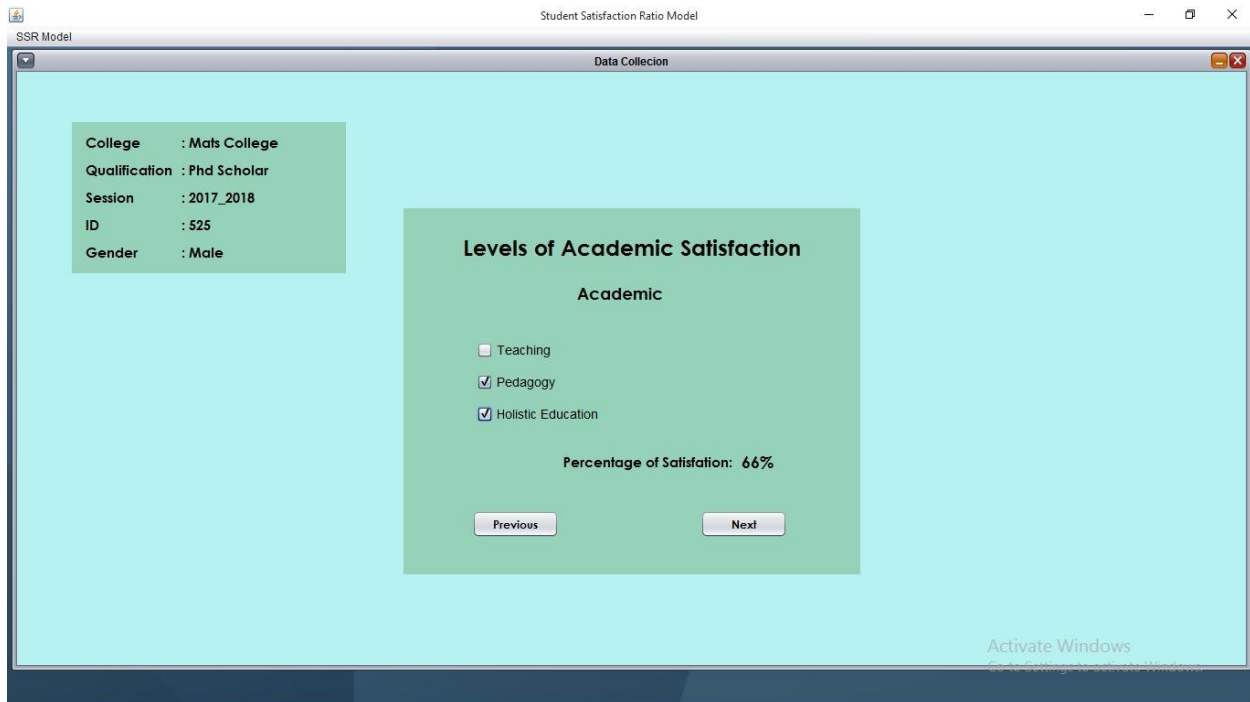
Fig 2. Level of Student Satisfaction Academic

That questionnaire was placement by three, one to national, international, and third package for student. **(F. R. Waugh, 2002)**.

Fig 3. Level of Student Satisfaction Placement

Though it is widely applied in college and university, is much criticized in higher education literature by scholars like; **(Teas, 1992, Buttle 1996, Asubonteng, et al 1996, Pariseau & McDaniel 1997, Aldridge & Rowley 1998, Waugh, 2002).** Being a government and private university in a non-profit service industry, it is difficult to apply business focused service quality model to measure student's satisfaction ratio as it is. For an example, the model more focuses on service providers' quality than tangibility. In a university environment, student satisfaction ratio is determined by multiple factors in which quality of service providers is a small part. Sample dataset of our SSRM model

Fig. 4. Student Satisfaction Data set

CONCLUSION AND SUGGESTIONS

This paper's contributions and suggestions include:

(1) Increase the number of basic things for student for college and university for our SSRM model. Restricted by factors such as the orientation of college and university development goals, the distribution of disciplines, the level of teachers, and the total number of student, the number of administrative panel satisfaction ratio, academic satisfaction ratio, and placement satisfaction ratio in basic for colleges and university is generally relatively small, which directly leads to relatively insufficient teaching and all organization resources for student education. In addition, most of the current basic courses of college and university. One of the ways to solve this problem is to establish and improve the curriculum organization system. And use grading to meet the development needs of students of different major satisfaction ratio.

Reference

Abdullah, F., 2006. Measuring service quality in higher education: HEdPERF versus SERVPERF. Marketing Intelligence and Planning, pp. 31-47.

Aigbavboa, C. & Thwala, W., 2013. A Theoretical Framework of Users' Satisfaction/Dissatisfaction Theories and Models. Pattaya, 2nd International Conference on Arts, Behavioral Sciences and Economics Issues.

Aldridge, S. & Rowley, J., 1998. Measuring customer satisfaction in higher education. Quality Assurance in Education, 6(4), pp. 197-204.

Ali, F. et al., 2016. Does higher education service quality effect student satisfaction, image and Loyalty. Quality Assurance in Education, pp. 70-94.

Alves, H. & Raposo, M., 2010. The influence of university image on student behaviour. International journal of Educational Management, pp. 73-85.

Alvis, H. & Rapaso, M., 2006. Conceptual model of Student Satisfaction in Higher Education. Total Quality Management and Business Excellence, 17(9), p. 1261-1278.

Anderson, E., 1973. Consumer Dissatisfaction: The Effect of Disconfirmed Expectancy on Perceived Product Performance. Journal of Marketing Research, 10(2), pp. 38-44.

Andrea, I. & Benjamin, S., 2013. University students' needs and satisfaction with their host city. Journal of Place Management and Development, 6(3), pp. 178-191.

Appleton-Knapp, S. & Krentler, K., 2006. Measuring student expectations and their effects on satisfaction: the importance of managing student expectations. Journal of Marketing Education, pp. 254-264.

Carey, K., Cambiano, R. & De Vore, J., 2002. Student to faculty satisfaction at a Midwestern university. pp. 93-97.

Carter, P., 2014. A CASE STUDY OF STUDENT SATISFACTION. s.l., Kyushu Sangyo University.

Carter, P., Kakimoto , E. & Miura, K., 2014. Investigating student satisfaction in an English communication course: A pilot study.. pp. 57-65.

Cassel, C. & Eklo, F., 2001. Modelling customer satisfaction and loyalty on aggregate levels – experience from the ECSI pilot study. In: Saint: s.n., pp. 307-1.

Clemes, M., Gan, C. & Kao, T., 2007. University student satisfaction: an empirical Analysis. Journal of Marketing for Higher Education, pp. 292-25.

Cronin, J. & Taylor, S., 1992. Measuring service quality: re-examination and extension. Journal of Marketing, pp. 55-68.

DeShields Jr, O. W., Ali, K. & Erdener, K., 2005. Determinants of business student satisfaction and retention in higher education: applying Herzberg's two-factor theory. International Journal of Educational Management, 19(2), pp. 128-139.

Douglas, J., Douglas, A. & Barnes, B., 2006. Measuring student satisfaction at a UK university. Quality Assurance in Education, pp. 251-267.

Elliot, K. & Shin, D., 2002. Student satisfaction: an alternative approach to assessing this important concept. Journal of Higher Education Policy and Management, pp. 197-209.

Elliott, K. & Healy, M., 2001. Key factors influencing student satisfaction related to recruitment and retention. Journal of Marketing for Higher Education, pp. 1-11.

Elliott, K. & Shin, D., 2002. Student satisfaction: an alternative approach to assessing this Important Concept. Journal of Higher Education Policy and Management,, pp. 97-109.

Escotet, M. A., 2012. Scholarly Blog. [Online] Available at: http://miguelescotet.com/2012/what-is-the-purpose-of-higher-education knowledge-or-utility/[Accessed 2 5 2017].

Farahmandian, S., Minavand, H. & Afshard, M., 2013. Perceived service quality and student satisfaction in higher education. Journal of Business and Management, pp. Volume 12, Issue 4 , PP 65-74.

Fortino, A., 2012. The Purpose of Higher Education: To Create Prepared Minds. [Online] Available at:

https://evolllution.com/opinions/the-purpose-of-higher-education-to-create-prepared-minds/[Accessed 2 5 2017].

Garcl a-Aracil, A., 2009. European graduates' level of satisfaction with higher education. Journal of Higher Education, 57(1), pp. 1-21.

Hanssen, T.-E. S. & Solvoll, G., 2015. The importance of university facilities for student satisfaction at a Norwegian University. Facilities, pp. 744-759.

Hon, w., 2002. Applying customer satisfaction theory to community college planning of student services. Insight in Student Services, p. Vol. 2

Ilyas, M. & Arif, S., 2013. Quality of work-life model for teachers of private universities in. Quality Assurance in Education, pp. 282-298.

Jurkowitsch, S., Vignali, C. & Kaufmann, H.-R., 2006. A Student Satisfaction Model of Austrian Higher Education. Innovative Marketing, 2(3), pp. 9-21.

Kanan, H. M. & Baker, A. M., 2006. Student satisfaction with an educational administration preparation program. Journal of Educational Administration, 44(2), pp. 159-169.

Karna, S. & Julin, P., 2015. A framework for measuring student and staff satisfaction with university campus facilities. Quality Assurance in Education, pp. 47-61.

Khan, M. M., Ahmed, I. & Nawaz, M. M., 2011. Student's Perspective of Service Quality in Higher Learning Institutions; An evidence Based Approach. International Journal of Business and Social Science, 2(11), pp. 159-164.

Kotler, P. & Keller, K., 2012. Marketing Management. NJ: Prentice Hall.

Kuh, G. & Hu, S., 2001. The effects of student-faculty interaction in the 1990s. Review of Higher Education, 24(3), pp. 309-332.

Malik, M. E., Danish, R. Q. & Usman, A., 2010. The Impact of Service Quality on Students' Satisfaction in Higher Education Institutes of Punjab. Journal of Management Research, pp. 1-11.

Martirosyan, N., 2015. An examination of factors contributing to student satisfaction in Armenian higher education. International Journal of Educational Management, - 29(2), pp. 177-191.

Marzo-Navarro, M., Iglesias, M. & Torres, M., 2005. A new management element for universities: satisfaction with the offered courses. International Journal of Educational Management, 19(6), pp. 505-526.

Mattila, A., Gradey, A. & Fisk, G., 2003. The interplay of gender and affective tone in service encounter satisfaction. Journal of Service Research, 6(2), pp. 136-143.

Mattila, A. & O'Neill, J., 2003. Relationships between Hotel Room Pricing, Occupancy, and Guest Satisfaction: A Longitudinal Case of a Midscale Hotel in the United States. Journal of Hospitality & Tourism Research, 27(3), pp. 328-341.

Mukhtar, U., Anwar, S., Ahmed, U. & Baloch, M. A., 2015. Factors effecting the service quality of public and private sector universities comparatively: an empirical investigation. Arts, Science & Commerce, pp. 132-142.

Nasser, R., Khoury, B. & Abouchedid, K., 2008. University students' knowledge of services and programs in relation to satisfaction. Quality Assurance in Education, 16(1), pp. 80-97.

Navarro, M. M., Iglesias, M. P. & Torres, P. R., 2005. A new management element for universities: satisfaction with the offered courses. International Journal of Educational Management, 19(6), pp. 505-526.

Oliver, R., 1997. Satisfaction: A Behavioral Perspective on the Consumer. New York: McGraw-Hill.

Olson, J. & Dover, P., 1979. Disconfirmation of consumer expectations through product trial. Journal of Applied Psychology, Volume 64, pp. 179-189.

Palacio, A. B., Meneses, G. D. & Perez Perez, P. J., 2002. The configuration of the university image and its relationship with the satisfaction of students. Journal of Educational Administration, 40(5), pp. 486-505.

Palacio, A., Meneses, G. & Perez, P., 2002. The configuration of the university image and its relationship with the satisfaction of students. Journal of Educational Administration, 40(5), pp. 486-505.

Parasuraman, A., Berry, L. & Zeithaml, V., 1985. A conceptual model of service quality and its implications for future research. Journal of Marketing, pp. 41-50.

Parayitam, S., Desail, K. & Phelps, L., 2007. The Effect of Teacher Communication and Course Content On Student Satisfaction and Effectiveness. Academy of Educational Leadership Journal, 11(3), p. 16.

Petruzzellis, L., D'Uggento, A. M. & Romanazzi, S., 2006. Student satisfaction and quality of service in Italian universities. Managing Service Quality, pp. 349-364.

Pathmini, M., Wijewardhena, W., Gamage, C. & Gamini, L., 2014. Impact of Service Quality on Students' Satisfaction in Newly Established Public Sector Universities in Sri Lanka: Study Based on The Faculty of Management Studies. Journal of Management Matters, pp. 51-64.

Peyton, R., Pitts, S. & Kamery, H., 2003. Consumer Satisfaction/Dissatisfaction (CS/D): A Review of the Literature Prior to the 1990s. s.l., Proceedings of the Academy of Organizational Culture

Rad, A. & Yarmohammadian, M., 2006. A study of relationship between managers' leadership style and employees' job satisfaction. Leadership in Health Services, pp. 11-26.

Richardson, J., 2005. Instruments for obtaining student feedback: a review of the literature. Assessment and Evaluation in Higher Education, pp. 387-415.

Richardson, J., 2005. Instruments for obtaining student feedback: a review of the literature. Assessment and Evaluation in Higher Education, 30(4), pp. 387-415.

Robbins, S. P., Judge, T. A. & Vohora, N., 2014. Attitude and Satisfaction. In: Organizational Behaviour. Delhi: Prentice Hall, pp. 64-89.

Saif, N. I., 2014. The Effect of Service Quality on Student Satisfaction: A Field Study for Health Services Administration Students. International Journal of Humanities and Social Science, pp. 172-181.

Sawyerr, P. T. & Yusof, N. A., 2013. Student satisfaction with hostel facilities in Nigerian polytechnics. Journal of Facilities Management, 11(4), pp. 306-322.

Shaltoni, A. M., Khraim, H., Abuhama, A. & Amer, M., 2015. Exploring students' satisfaction with universities' portals in developing countries: A Cultural Perspective. The International Journal of Information and Learning Technology, pp. 82-93.

Shuxin, G., Fei, T., Jiannan, G. & Yang, S., 2014. The construction of college student's satisfaction model based on structural equation model. Journal of Chemical and Pharmaceutical Research, 6(6), pp. 164-169.

Sigala, M. & Sakellaridis, O., 2004. Web users' cultural profiles and e-service quality: internationalization implications for tourism websites. Information Technology and Tourism, pp. 13-22.

Sojkin, B., Bartkowiak, P. & Skuza, A., 2012. Determinants of higher education choices and student satisfaction: the case of Poland. Higher Education, 63 (5), pp. 565-81.

Vavra, T. G., 1997. Improving Your Measurement of Customer Satisfaction: A Guide to Creating, Conducting, Analyzing, and Reporting Customer Satisfaction Measurement Programs. Americal Society for Quality, pp. 44-60.

Voss, R., 2009. Studying critical classroom encounters: The experiences of students in German college education. Quality Assurance in Education, pp. 156-173.

Waugh, R. F., 2002. Academic staff perceptions of administrative quality at universities. Journal of Educational Administration, 40(2), pp. 172-188.

Wilkins, S. & Balakrishnan, M. S., 2013. Assessing student satisfaction in transnational higher education. International Journal of Educational Management, pp. 146-153.

Yusoff, M., McLeay, F. & Woodruffe-Burto, H., 2015. Dimensions driving business student satisfaction in higher education. Quality Assurance in Education, pp. 86-104.