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The Importance of University's Intellectual Capital: A Comparative Study on the Perceptions of Lecturers of Public and Private Universities in West Sumatra 1Fivi Anggraini, 2 Resti Yulistia Muslim, 3Arie Frinola Minovia {fivianggraini@bunghatta.ac.id1, resti_yulistiam@yahoo.com2, ariefrinolaminovia@yahoo.com3} 1,2,3Department of Accountancy, Faculty of Economics and Business, Universitas Bung Hatta, Padang, West Sumatra 25133, Indonesia Abstract. This study was conducted to examine the lecturers' perceptions of the importance of intellectual capital at public and private universities in the province of West Sumatra, Indonesia. The sampled universities for the study comprised three public universities and six private universities, which were taken from the university rankings website www.4icu.org. The independent sample T-test was used to test the hypotheses. The findings proved that there were differences on the perception of lecturers concerning the importance of university's intellectual capital at public and private universities in West Sumatra. The public university lecturers gave a better perception on intellectual capital as compared to the private university lecturers. Concerning the individual elements of intellectual capital i.e. relational capital, they also showed different perceptions. Meanwhile, there is no difference perception between the lecturers at public and private universities concerning the human capital and structural capital. Generally, the findings suggested that private universities increase investment for managing their intellectual capital as it gains a fruitful performance for the university. Keywords: Intellectual capital, human capital, structural capital and relational capital Introduction Higher education institutions play a vital role to develop a high quality of human resources that have adaptability for various challenges as impact of the advancement of a new era. Therefore, according to Meihami & Karimi [1], [2], [3] and [4], higher education institutions should raise their superiority through optimizing their resources in order to be survived in facing the global competition. Ramirez & Gordilo [5], [6] [7] identified one of the most valuable resources or main assets which has been identified be able to raise the university is lecturers and students who integrated to form the organization. These assets can be used as an advantage in making of a comparison between universities in global competition [8], [9] and [7]. Normally, such main assets cannot be identified clearly and there are referred as intangible assets. The concept of intangible assets or known as intellectual capital (IC) has been developed for non-profit organizations such as universities. The university's intellectual capital (IC) consists of human capital, structural capital and relational capital, which are very important in line with the aim of the university is to produce knowledge, research and educated human resources. All these points should receive a great attention in an effort of improving university performance [10], [11], [12] [13] and [14]. They are the input and output of a university and categorized as intangible [15]. According to Leitner[10] and [14]. university is a part of a nation's system of science, education, and innovation and knowledge producers as well. Generally, types of university are classified into two, namely public universities and private universities. Historically, public universities had a better institutional image when compared to private universities. In Indonesia, according to Law No. 2 of 1989, the difference between public and private universities only lies in the ownership, management and funding sources. While the basic curriculum at public and private universities are the same because they are made on the basis of the national curriculum that have been regulated by the ministry. In line with rapid development of education sector, the growth of number of universities in Indonesia has drastically increased since the last decade. According to the Ministry of Research, Technology and Higher Education, Republic of Indonesia the number of public and private universities in Indonesia have increased by around 18. 03% and 6.87% from 2011 to 2018. The increase growth of higher institutions in Indonesia should be followed by improving the quality of education, services and quality by their management. This is because the survival of university in competition only depends on how good they manage their competitive advantage. The national

rankings of the universities in West Sumatra issued by www.4icu.org, as shown in Table 1, is still far from satisfactory. Only two public universities that are ranked in the top 50 Indonesian universities, while others 7 private universities are placed above 100th ranks. It has been identified that one of the contributing factors that cause the unsatisfied ranks is the different perceptions about intellectual capital consisting of human capital, structural capital and relational capital among the university members. Therefore, the programs and activities have been made not be able to grab the achievement of getting high ranking requirements. In fact, intellectual capital becomes an important criterion for university to achieve a good ranking both national and international levels. As this reason, a study needs to be conducted to find out the perceptions on intellectual capital among public and private university lecturers in West Sumatra. As earlier mentioned, the intellectual capital perception among lecturers is important to be looked seriously because it will determine the direction of the policy and program of a university if later on the lecturers hold a management post at the university. Good perception of intellectual capital would make the program development of university in line with the objectives or criteria for achieving the higher university rankings both national and international levels. Aside from rankings, education is one of the important development sectors in West Sumatra. This province has been long renowned as a shed of scholars and thinkers in Indonesia. In fact, the West Sumatra's special features and potential is only as a human resources producing province in Indonesia. Therefore, the education program has to continuously receive a strong support and get a high priority from the government. One of the aspects should be given a great attention is that the universities in West Sumatra must develop a high quality of education to produce a quality human resource that are able contribute their knowledge at both the national and international levels. Table 1 Top 10 Universities in West Sumatra 2018 Unirank version Rank National World University Name City 1 27 2 34 3 164 4 230 5 244 6 248 7 306 8 312 9 350 10 367 1824 Universitas Negri Padang 2061 Universitas Andalas 8340 Universitas Bung Hatta 10091 Universitas Islam Imam Bonjol 10307 Institut Seni Indonesia Padang Panjang 10382 Universitas Putra Indonesia YPTK 11443 Universitas Dharma Andalas 11493 Universitas Muhammadiyah Sumatera Barat 11975 Universitas Eka Sakti 12131 Universitas Baiturrahmah Padang Padang Padang Padang Padang Panjang Padang Padang Padang Padang Padang Source: www.4icu.org According to Warden [16] and [14] one of the different factors between the public and private universities is the transparency of the use of public funds. As known that the fact that most public universities are funded by the government [17], [18]. However, on contrarily, in private universities, all the funding comes from the management of the university itself. In general, private universities financial management is sometimes lacking of transparent and less accountable. Whereas, transparent and accountable financial management is important because the main goal of higher education [19], [14]. This condition is necessity to ensure that universities are recognized as an important function of development, knowledge-based society in organizations [20], [21], [22], and [23]. Thus, one of the obligations of the university is to introduce intellectual capital to its stakeholders. This is an important step forward for new style of university management, with the aim of identifying and measuring intangibles for management goals to stakeholders, [24],[25], [26] and [27]. This study aims to examine the lecturers' perceptions on the importance of intellectual capital at public and private universities in the province of West Sumatra, Indonesia. Based on the above theory, the development of this research hypotheses for this study are as follows: H1: There is a difference in perception of the importance of intellectual capital between lecturers of public and private universities H1a: There is a difference in perception of the importance of human capital between lecturers of public and private universities H1b: There is a difference in perception of the importance of structural capital between lecturers of public and private universities H1c: There is a difference in perception of the importance of relational capital between lecturers of public and private universities Materials and methods This study used a quantitative approach to empirically prove the lecturers' perceptions on the importance of intellectual capital and its relevant items in the sampled universities. The research population includes all lecturers at Public and private universities in West Sumatra. The samples from the population were taken from data released by the University Rankings website: www.4icu.org. Only 9 (nine) universities in West Sumatra were listed at the website on November 30, 2018 (Table 1). They consisted of 3 (three) public universities and 6 (six) private universities. This study intentionally chose this website since it is the only one website that provides rankings of the Indonesian University included the universities in West Sumatera. Research instrument Intellectual capital at a university is a term that is being used to cover all non-physical assets including processes, capacity for innovation, patents, members' tacit knowledge and capacity, talents and skills, community recognition, network of collaborators and their contacts, etc. The instrument for measuring intellectual capital was adopted from [28]. This instrument consists of 1 to 5 Likert scales, where scale 1 is "not at all important" and scale 5 says that "it is very important". Human capital is the amount of explicit and hidden knowledge from university staff (teachers, researchers, managers, administration and service staff) which obtained through formal and non-formal education and update processes in their activities. A total of 12 questions were sent for human capital.

Structural capital is explicit knowledge related to the internal processes of dissemination, communication and management of scientific and technical knowledge in universities. Structural capital includes organizational capital and technology capital. Organizational capital is an operational environment that stems from interactions between research, management and organizational processes, organizational routines, corporate values, interagency procedures, quality and scope of information systems, etc. Technology capital is technology resources available at universities, such as bibliographic and documentary resources, archives, technical development, patents, licenses, software, databases, etc. A total of 13 questions were asked for structural capital. Relational capital is an extensive collection of economic, political and institutional relationships that are developed and upheld by universities and their non-academic partners, namely companies, non-profit organizations, local governments and the community at large. This also includes the perception of other shaving of the university; image, appeal, reliability, etc. A total of 16 questions were sent for relational capital. Results The respondents of this study were the university's administrators i.e. the Chancellor, Deputy Chancellor, and faculty's administrators i.e.. Deans, Deputy Deans and Heads and Department Secretary and lecturers. The universities and faculties administrators were purposely chosen as the research respondents because they knew a great deal about their institutions. The respondents were given a set of questionnaire concerning about the academic and research matter. The questionnaire and sample size are presented in Table 2. Based on Table 2, a total number of 417 questionnaires were distributed to the respondents of this study were. From the amount, 88.12% of the respondent rate was successfully obtained. Such percentage can be categorized as very high level respondents. The level of respondents was also very good since usually the level of respondents in Indonesia was in the range of 10% -16% of the total samples [29]. Table 2. Distributed Questionnaire and Sample Size University Response Total Rate Public Private (%) Distributed questionnaire Not returned questionnaire Potential respondents Incomplete responses Total number of questionnaire process Usable response rate 191 226 417 (22) (50) (72) 169 176 345 (17) (24) (41) 152 152 304 88,12% In the respondents' profile as revealed in Table 3, it can be explained that the respondents in this study had represented the number of population. The sampled public and private universities in West Sumatra amounted nine samples, which consisted of three public universities and six private universities. A total of 177 respondents or (58.22%) who gave responses were men, while the rest were women. The majority of respondents have an age profile between 30-39 years or with a total of 98 or (32.23%) of the total respondents. Around 80.92% or 246 respondents had Master Degree. Table 3 Respondent Profile Number of Percentage Demographic Profile respondents (%) Public University Universitas Negeri Padang Universitas Islam Negeri Universitas Andalas Padang Prive University Universitas Muhammadiyah Sumatera Barat Universitas Baiturrahmah Universitas Eka Sakti Universitas Dharma Andalas Universitas Bung Hatta Universitas Putra Indonesia 63 20.72 45 14.80 44 14.47 17 5.59 7 2.30 15 4.93 31 10.20 40 13.16 42 13.82 Position Vice Rector Dean Vice Dean Head of Department Secretary of Department Lecturer Other 1 4 7 30 28 222 12 0.33 1.32 2.30 9.87 9.21 73.03 3.95 Educational Level Professor 1 PhD 47 Master Degree 246 Bachelor Degree 8 Other 2 0.33 15.46 80.92 2.63 0.66 Year of service < 2 tahun 47 2 – 5 tahun 102 5 – 8 tahun 47 > 8 tahun 98 Other 10 15.46 33.55 15.46 32.24 3.29 Age < 30 years 46 30 – 39 years 98 40 – 49 years 70 50 – 59 years 65 60 – 69 years 22 >70 years 3 15.13 32.23 23.03 21.38 7.23 0.98 Gender Male 177 Female 127 58.22 41.78 The results of testing hypothesis 1 for elements of intellectual capital consisting of human capital, structural capital and relational capital is presented in Table 4. Table 4 Independent Sample T Test for Lecturers' Perception of Intellectual Capital Result Variable Group N Mean Std Dev. t Sig hypothesis Intellectual Capital (IC) Human Capital (HC) Public Private Public Private 152 152 Structural Capital (SC) Public Private 152 Relational Capital (RC) Public Private 152 182.493 179.454 52..961 52. 336 56. 783 55.882 71.164 69.592 13.021 14.219 1.944 5.321 5.365 1.020 5.937 6.149 1.300 5.753 7.226 2.099 0.049* 0.309 0.195 0.037* H1 Supported H1a Rejected H1b Rejected H1c Supported Sources: Data processed with SPSS * significant P< 0.05 The results of testing the significance value of t arithmetic was 0.049, where this value is smaller than 0.05 (α = 5%). These results indicated that the H1 hypothesis is accepted because there are significant differences on the perception of the importance of intellectual capital of lecturers of public and private universities. This finding supports the theoretical assertions made by [30], [31, [28], [32], and [1] when they observe that the three intellectual capital elements play a very important role in organization performance and in survival of the higher education. The amount of 182,493 public university lecturers was greater than that of the private universities. However, the elements of intellectual capital proves that human capital and structural capital as shown in hypotheses 1a and 1b are rejected with a significance value of 0.309 and 0.195, respectively or greater than that of 0.05. It means there is no significant difference in the perception of lecturers at public and private universities. Furthermore, the results of testing the hypothesis 1c for relational capital proved to be accepted or there were differences in lecturers' perceptions of public and private universities with a significance value of t arithmetic of 0.037 or smaller than 0.05 (α = 5%). The differences in each of the human capital items between public and private

universities can be seen in detail in Table 5. Table 5 The Difference in Items of Human Capital between Public and Private Universities Question item Group N Mean Std. Dev. t sig Typology of university staff (historical Public 4.309 .791 2.589 data on the increase and decrease of Private 152 4.079 .759 staffing number, staff age structure, type of contracts, etc. (HC1) Teaching and research staff academic and qualifications (HC2) Mobility of teacher and researcher (HC3) Scientific productivity (books) (HC4) Teaching and research professional qualifications (HC5) Mobility of graduate students (HC6) Efficiency of human capital (HC7) Teaching capacities and competence (HC8) Public Private Public Private Public Private Public Private Public Private Public Private Public Private 152 152 152 152 152 152 152 Research capacities and competence (HC9) Public Private 152 Capacity for teamwork (HC10) Public Private 152 Leadership capacity (HC11) Public Private 152 Training activities (HC12) Public Private 152 4.625 .573 4.658 .553 4.355 .694 4.415 .741 4.454 .574 4.395 .621 4.487 .598 4.388 .681 4.237 .678 4.072 .621 4.540 .629 4.329 .735 4.625 .562 4.533 .619 4.533 .586 4.487 .612 4.428 .637 4.309 .663 4.566 .616 4.447 .669 4.388 .662 4.211 .734 -.509 -.719 .863 1.342 2.205 2.683 1.359 .666 1.588 1.605 2.217 .010* .611 .473 .389 .181 .028* .008** .175 .506 .113 .110 .027* Sources: Data processed with SPSS ** significant P< 0.01, * significant P< 0.05 Table 5 shows that the differences in lecturer perceptions are found significantly in the typology questions of university staff (historical data of increase and decrease in staff numbers, structure, staff age, type of contract (t = 2,589, p <.05); student mobility (t = 2,205, p <.05) human resource efficiency (t = 2.683, p <.01); training activities (t = 2.217, p <.05). The results verified that public universities got more support and training for career development of lecturers, administration staff and student mobility as well as. The respondents at public universities mentioned that all these things have given important positive impact and many benefits to improve the quality of education. On the contrary, the respondents at the private university felt that they were lacked adequate support and training for the career development of lecturers and staff and student resources and also student mobility. The difference of each items of the structural capital items in details is indicated in Table 6. The results showed a significant different of 3 (three) items out of 13 (thirteen) question items for structural capital elements. They were installation and internal resources that support pedagogical qualifications and innovation (t=3.261, p<0.01); teaching organization and management (t = 2,191, p<0.01) and technological capacity (t = 3.25, p <0.05). The results showed that public universities provide a high standard lecture material. This is able to improve the university ranking itself to be better. In contrast to the private universities, the weight of lecture material is lower than that of the public university standard. Besides that, most public universities have utilized digital technology, especially information technology (IT) as a strategy to improve the quality and excellence of teaching and learning process in higher education institutions. The technology has been applied in all activities included curriculum, facilities, services, and learning systems. It can be done smoothly as the support of human resources and funding from the government in line with the obligation of the government to lift-up the public universities in Indonesia. Whereas the ability of private universities in building technological capacity very much depends on the financial condition of the university management. Table 6 The Difference in Items of Structural Capital between Public and Private Universities Question Item Group N Mean Std Dev. t Sig (2- tailed) Installations and material resources supporting pedagogical qualification and innovation (SC13) Installations and material resources supporting research and development (SC14) The institution's assessment and qualification processes (SC15) Organisational structure (SC16) Teaching management and organisation (internal communication of result, periodical exchange with foreign teachers, teaching incentives, etc.) (SC17) Research management and organisation (internal communication of results, efficient management of research projects, research incentives, these read, etc.) (SC18) Organisation of scientific, cultural and social events (SC19) Productivity of the administration, academic and support services (SC20) Organisation culture and values (SC21) Efforts innovation and improvement (expenditure on innovation, staffing level, etc.) (SC22) Management quality (SC23) Information system (document processes, database, ITC use, etc.) (SC24) Technological capacity (total expenditure on technology, availability and use of computer programmes, intranet/internet use, etc.) (SC25) Public Private 152 Public Private 152 Public Private 152 Public Private Public Private 152 152 Public Private 152 Public Private 152 Public Private 152 Public Private Public Private 152 152 Public Private Public Private 152 152 Public Private 152 4.415 .624 4.177 .642 4.421 .636 4.395 .632 4.389 .576 4.278 .739 4.342 4.329 4.309 .631 .707 .622 4.145 .685 4.316 .603 4.296 .629 4.290 .637 4.283 .624 4.441 .595 4.401 .612 4.303 4.270 4.461 .641 .651 .640 4.474 .586 4.474 4.382 4.625 .597 .650 .536 4.520 .651 4.612 .553 4.362 .768 3.261 .362 1.472 .171 2.191 .279 .091 .570 .444 -.187 1.286 1.538 3.257 .001** .718 .142 .864 .029* .780 .928 .569 .657 .852 .199 .125 .001** Sources: Data processed with SPSS, ** significant P< 0.01 , * significant P< 0.05 The average difference of each item of the relational capital is shown in Table 7. The results revealed a significant different was found at 2 (two) out of 16 (sixteen) question items. They were the effectiveness of undergraduate and postgraduate teaching (average duration of study of graduate dropout rates) (t = 3.980, p <0.01); relations with the community at large

(institutional representation of external organizations, and cooperation in national and international projects, etc.) (t = 2.499, p <0.05). This is because the lecturers at public universities really focus on their profession. Because most of them were civil servants, and they are not allowed to have businesses or other activities outside the campus as stated in the government regulations. Besides that, lecturers at public universities provide truly academic knowledge, both theory and practice. Therefore, the effectiveness of teaching is stronger and that students are truly diligent and able to retrieve in the all the material given in their mind. Although, some lecturers of private universities who really focus on being lecturers, however, some of the lecturers also have businesses at outside. This is possible because plenty of lecturers at private universities are not bound by government regulations because most of them are not civil servants. It is also rarely found the cooperation of private universities with other organization in both national and international levels. This is due to the foreign cooperation partners are usually looking for collaborative partners who are of the same level or quality because with them as they want also have benefits from both parties. Table 7 The Difference in Items of Relational Capital between Public and Private Universities Question Item Group N Mean Std Dev. t Sig Effectiveness of graduate teaching (average Public 4.329 .639 duration of studies, dropout rate, graduation Private 152 rate, etc.) (RC26) 4.007 .768 3.980 Student satisfaction (RC27) Graduate employability (RC28) Relations with students (capacity of response to student's needs, permanent relations with graduates, etc.) (RC29) Relations with students (capacity of response to student's needs, permanent relations with graduates, etc.) (RC29) Relations with society in general (institutional representation in external organisations, collaboration in national and international projects, etc.) (RC31) Applications and dissemination of research (dissemination of result, social appropriateness of research) (RC32) Relations with media (RC33) University image (RC34) Collaborations and contacts with public private organisations (RC35) Collaboration with order universities (RC36) Strategic links (RC37) Relations with quality institutions (RC38) The regional, national, and international reputation of the university (RC39) Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public 152 Private Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public Private 152 Public Private 152 4.566 4.526 4.513 4.507 4.447 4.447 4.474 4.336 4.467 4.283 4.362 4.349 4.210 4.210 4.599 4.671 4.388 4.486 4.473 4.500 4.500 4.474 4.572 4.579 4.671 4.638 Social and cultural commitment (RC40) Public 4.408 Private 152 4.322 Environmental responsibility (RC41) Public 4. 572 Private 152 4.546 .536 .630 0.589 .587 .651 0.093 .584 .584 0.000 .630 .650 1.881 .598 .685 2.499 .646 .623 0.181 .725 .725 0.000 .555 .512 -1.182 .553 .609 -1.480 .597 .587 -0.387 .564 .608 0.391 .535 .546 -0.106 .499 .534 0.555 .602 .582 1.259 .615 .550 0.393 .000* .557 .926 1.000 .061 0.013** 0.857 1.000 .238 .140 .699 .696 .916 .579 .209 .695 Sources: Data processed with SPSS, ** significant P< 0.01 * significant P< 0.05 Discussion This research was successfully examined the lecturers' perceptions on the importance of intellectual capital (IC) in public and private universities. The results of this study proved that there are differences in the perception among lecturers at the public and private Universities in West Sumatra. It means public university lecturers have seen important perception of intellectual capital for universities when compared to private university lecturers. The results of this study supports the findings of [33] who said that academics' perceptions of intellectual capital in public and private universities are important for maintaining the quality academics. There are vast studies that have investigated and proven that IC is the most important strategic and significant assets towards performance [34,] [35], [36], [37]and [38]. As stated by Hashim, Osman & Alhabshi [39] companies with six balanced elements of intellectual capital such as human capital, structural capital, customer capital, social capital, technological capital and spiritual capital can increase organizational performance. This proved that intellectual capital is the most important and strategic resource for universities, [40]. The results are similar to Lu, [32], [1] and [5], who states that it is important for universities to provide appropriate information on their intellectual capital. According to Nadia & Derani [41] found that there is no much difference between public and private universities in terms of education and student satisfaction. This concluded that the universities must be more transparent in the performance evaluation system, financial allocation and providing facilities. The results of hypotheses 1a and 1b about human capital and structural capital showed the same perception of Public and private lecturers. The average respondent stated that the elements of human capital and structural capital are important for both public and private universities. This finding has strengthened the previous studies as reported by Khan, [42,] [43], [32], [41] and [28]. This result defends the findings by previous researchers such as [32], [14], [28], who indicated that human capital and structural capital, are the most significant investments in a university. However, only 4 items out of 12 human capital items and 3 out of 13 structural capital items indicated different perceptions from the lecturers of public and private universities. This finding is consistent with [44], [45] who mentioned that the university's main goal is to produce and disseminate knowledge through academic research and human resources as its biggest investment. Meanwhile hypothesis 1c proved that there is a significant difference of 2 (two) of out 16 (sixteen) items of the relational capital question element. The results

of this study are consistent with [46], [47], and [48]. This study has confirmed previous research on [49], [50], [28] and [14], who said that building a partnership with outside parties or bodies has improved the university' s competitive advantage. Conclusion The private universities are suggested to be more aggressive in establishing relationships with various external institutions both national and international levels. Besides that, it is also crucial to build a cooperation with community in an effort to further enhance the credibility of the institution. The private universities must also invest more asset for managing the intellectual capital. All the-above suggestions can be realized by the private universities through applying a tight regulation to their teaching staff in order to improve their potentiality and focus in conducting their responsibility as a lecturer. Other than that, private universities also obligate to build a strong financial support for developing the education facilities and also for cultivating their human resources as well, so that they will become a really as intangible asset and be able to bring a continually survival for the university. In the end of the day, it will increase the university performance, which later on will create an attraction for prospective students to make a priority in pursuing study at the private universities. Acknowledgements The authors would like to thank all respondents, who have participated and sacrificed their time to fill-up the questionnaires for this study. The authors are also very grateful to the LPPM of the Bung Hatta University for the research funding. REFERENCES [1] Meihami, B & Karimi, J. (2014). The relationship between intellectual capital reporting and universities performance. MAGNT Research Report, 2 (5), 748-754. [2] Sharabati, A.A., S.N. Jawad, N. Bontis, (2010). 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