Perceived Ease of Use, Perceived Usefulness, and Attitude towards Jeffrey's Amazing Statistics Program (JASP) among Students of a Private Higher Educational Institution in Region IV-A

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ABSTRACT

Technology had created significant changes in education specifically in mathematics and statistics. Students often view statistics as a difficult course, which is why they utilize different technological tools as learning aides. One of the promising statistical tools available nowadays is the Jeffrey's Amazing Statistics Program (JASP). Since JASP is a relatively new statistical tool, minimal studies have explored on the students' acceptance of it. Thus, this study inquired on the students' perceived ease of use, perceived usefulness, and attitude towards JASP as the basis of their technology acceptance. Descriptive-correlational design was utilized in this study. A survey was administered to 134 students of a private higher educational institution in Laguna, Region IV-A. The data was analyzed using Weighted Mean and Spearman rho. Results revealed that the students find the JASP software as an easy to use tool and they believed that it will increase their productivity in class. They also expressed positive attitude towards the software with a desire to get better at using it. There is a significant relationship between perceived ease of use and perceived usefulness towards JASP, which means that if the students find JASP as a trouble-free learning tool, they would consider it as useful. Further, both perceived ease of use and perceived usefulness have significant relationship towards the students' attitude. This concludes that the students are more likely to accept JASP because it is easy to use and useful with learning statistics, which influence their positive attitude that may translate to their utilization and technology acceptance.

Keywords: *Perceived ease of use, perceived usefulness, attitude, TAM, JASP*

INTRODUCTION

Technology is becoming an increasingly important tool in the educational system (Buabeng-Andoh, 2012) and its integration to higher education is unavoidable (Sakar, 2012). Because of this, universities and governments are maximizing their efforts to properly utilize the technologies emerging in the market (Buabeng-Andoh, 2012; Edmunds, Thorpe, & Conole, 2012). Instructors are especially challenged to incorporate these tools in their way of teaching because today's 21st century learners are very inclined with technology (Al-Busaidi & Al-Shihi, 2010). The education system should cope with the changes and development that is happening in the world which makes its evaluation even more important (Hamidi, Meshkat, Rezaee, & Jafari, 2011).

The potential of digital technologies for mathematics education have been looked upon by educators and researchers (Drijvers, 2015). Computers are believed to bring many benefits in the teaching and learning process of mathematics (Chong, Puteh, & Goh, 2013). Long and tedious computations on math and statistics can be simplified by computer software which may allow students to focus on the interpretation of the results (Chong et al., 2013).

Learning statistics can be hard for students and sometimes can cause anxiety (Brezavšček, Šparl, & Žnidaršič, 2014). They perceive statistics as one of the worst courses to take in college and they fear the things that involved with it (Slootmaeckers, Kerremans, & Adriaensen, 2014). Because of this, reform efforts have been made in statistics education integrating technological tools such as statistical software to help students in understanding statistical concepts (Given-Larwin, 2011). These ICTs allow students to perform calculations in an instant, giving them more time in understanding and interpreting the results.

Jeffrey's Amazing Statistics Program or JASP is an example of an ICT tool that is being utilized by educators and students in learning statistics. It was developed by a group or researchers at the University of Amsterdam, with the goal of making Bayesian analyses easier for students and practitioners. It was especially designed to be user-friendly to simplify the understanding of statistical concepts (JASP Team, 2018). JASP also comes with an APA formatted tables, which can easily be copied and pasted in word documents. One of the interesting features of this software is that it is an open-source and free of charge as a service to community (Bartlett, 2017). In turn, the developers are expecting that users will give feedback and valuable suggestions for further improvement of the software program (JASP Team, 2018).

On the other hand, implementing ICTs in education is also armed with challenges and barriers. Sakar (2012) recognized that installing technologies without reviewing the students' needs is one of the most common mistakes of ICT integration. While there are a lot of efforts in the advancements in technologies in education, few researches explored on the wholeheartedness and usage by the students (Nair & Mukunda Das, 2012). Success of technology integration depends on the user acceptance which is why student acceptance must be considered (Al-Adwan, Al-Adwan, of, & 2013, n.d.). Students' acceptability of the systems is an essential part of the whole process because their acceptance will translate into their utilization.

There is a growing interest in the integration of ICTs in learning different courses including statistics, but few have examined the students' acceptance of these technological tools, specifically about JASP. The researcher saw this as an opportunity to contribute to this body of knowledge especially when there are little-to-no studies found about the JASP software. Since JASP is a relatively new and developing ICT tool in learning statistics, it is perceived to be a good research avenue that needs further exploration. It is also sought to be important to evaluate the students' acceptance of JASP, as the success of ICT implementations depends on the users' acceptability and usage.

Review of Literature

Students' Acceptance of Technology in Education

The 21st century learners are aggressive in acquiring new information (Blair, 2012). They are coined as *digital natives* as they were raised in a digital environment that affects the way they think and behave (Gu, Zhu, & Guo, 2017). Using technology in learning is natural in this generation (Margaryan, Littlejohn, education, & 2011, n.d.). Students nowadays engage in learning in a whole new different level and their expectations are not easily met with the traditional method of teaching (Irvine, Code, & Richards, 2013). They are even more knowledgeable in technology than their teachers (Gu et al., 2017).

The education has benefitted from ICTs in terms of improving the quality and quantity of educational works. Teachers and students would not only depend on printed materials but they can also be assisted by ICT through digital learning materials, discussion groups, online tutorials, virtual offices, classrooms, libraries, websites, software, etc. (Shan Fu, 2013). The learning environment now has become a student-centered one (Castro Sánchez & Chirino Alemán, 2011) therefore, these innovations in technology has provided more possibilities for both teacher and student. However, these could only be effective if used appropriately. Previous studies have suggested that appropriate usage of ICT can leverage the quality of education and application of learning in real-life situations (Shan Fu, 2013).

Learning mathematics is often hard for students and one of the reasons is that mathematical concepts are abstract. However, the visual that technologies can provide would help students in their education and engage them to learning (Ayvaz & Ozdemir, 2010). The US National Council of Teachers of Mathematics believed that technology is an essential tool in learning mathematics in the 21st century and imposed that all students must have access to these. Without a doubt, digital innovations are also bringing significant changes in the field of mathematics. Moreover, researches have shown that integration of technology have positively affected students' achievements in fields like mathematics, sciences, and other subjects areas (So & Kim, 2013).

Students often face difficulties in learning statistics and would feel anxious when trying to understand statistical concepts (Brezavšček et al., 2014). Educators and researchers have continuously acknowledge the integration of digital technologies in the pedagogy of teaching and learning to lessen the fear of statistics (Chen, Chen, & Chen, 2015). Students' nowadays have access to different forms of technology which may enhance statistical understanding with appropriate use (Callingham, 2011). Nolan & Swart (2015) explored on a large group of undergraduate students about their usage of computer-based technology in learning statistics. The participating undergraduate students appreciate Microsoft PowerPoint slides in the classrooms setting which allows them to visualize the statistical concepts more accurately. The results of the study also noted the importance of calculators and Microsoft Excel to the students' independence in learning the lessons about statistics. A software called Tinker plots was especially designed to make the interaction with young students more fun as it allows the data to be played yet in meaningful ways (Konold & Miller, 2005, as cited by Callingham, 2011).

The popularity of ICTs in education paved ways for various types of mathematical ICTs (Bakar, Ayub, Luan, & Tarmizi, 2010). Comparative study of GeoGebra, an open source software featuring geometry, algebra, and calculus in an easy-to-use package; and V-Transform, a software developed by a group of researchers aligned with the students' difficulties was accomplished in the study *Exploring Secondary School Students' Motivation Using Technologies in Teaching and Learning Mathematics*. The results show that while the students enjoyed and are motivated to use both software, V-transform attracted the students more and was perceived to be more relevant to them (Bakar et al., 2010). This suggests that considering what the students need in implementing ICTs would result to more positive acceptance in the students' perspective.

M-learning or mobile learning is a trend in HEIs, utilizing students' mobile devices in learning. It is a way of addressing the physical limitations of the teachers and students. A study in Saudi Arabia explored the student acceptance of m-learning in the higher education. Every student who responded in the study uses mobile devices but only 17.5% are familiar with m-learning (Nassuora, 2013). As a result of the study, the students had a good perception of the m-learning which means they accepted it. Abu-Al-Aish & Love (2013) inquired on M-learning and found out that effort expectancy, teachers' influence, and personal innovativeness are strong predictors of technology acceptance. Interestingly, prior experience or exposure to m-learning is a moderator to the technology acceptance of the students (Abu-Al-Aish & Love, 2013).

Meanwhile, difference in the manner of making the students use a technology was noted in the study *Tablet Personal Computer Integration in Higher Education: Applying the Unified Theory of Acceptance and Use Technology Model to Understand Supporting Factors*. Upper class students of a small Midwestern university expressed their initiative in accepting tablet and personal computers as computing devices to aid them in their studies since the first and second year were mandated (Moran, Hawkes, & Gayar, 2010). However, the freshmen students conveyed high possibility of accepting the technology.

Aside from exploring in the acceptance of technology, Mahdi (2014) also studied the self-efficacy or the belief that one can do a particular behavior. The respondents of the study are not required to use e-learning in their education prior to the study but results show that acceptance of e-learning depends on four components namely perceived ease of use, perceive usefulness, behavioral intention and self-efficacy. The students show high level of acceptance while noting the importance of self-efficacy in their usage (Mahdi, 2014). Guo & Stevens (2011) inquired on how first year students perceive wikis in terms of group collaborations. They identified factors that influence their perception such as students' prior experience with wiki; encouragement and support of their teachers and peers as it is also a great influencer to what they believe in; and the importance of continued use as it is a stimulus to their perceive usefulness of the wikis.

Students' Perceived Ease of Use and Perceived Usefulness of Technology

When encountering a new technology, different factors affect the user's decision on using and accepting the innovation (Šumak, Heričko, & Pušnik, 2011). The two main factors that influence technology acceptance based on the Technology Acceptance Model (TAM) are the Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) (Davis 1898 as cited by Elkaseh, Wong, & Fung, 2016). The PEOU is concerned about the effort that a user exerts in using the technology while the PU is involved with how much a technology contributes in the work performance of the user.

Smeda, Shiratuddin, & Wong (2014) proposed a framework on mathematics and statistics students' adoption of e-book in their education, which was guided by the Theory of Reasoned Action and Technology Acceptance Model. The study suggests to acknowledge that their explored variables including the perceived ease of use and perceived usefulness are factors that will lead to mathematics and statistics students to use e-book in their learning (Smeda et al., 2014).

Professional statistical softwares are often complex that is why some students may have a hard time using it. Statistical softwares like SPSS (Statistical Package for the Social Sciences), SAS (Statistical Analysis System) and Stata may require advanced professional knowledge (Weili Xu, Zhang, Su, Cui, & Qi, 2014), which is why it is important to choose appropriate tools that students will find easy to use and evaluate these softwares every now and then (Weili Xu et al., 2014).

As mentioned, mathematics is often believed to be hard which may bring anxieties to students and even to instructors. Because of this, ICTs became handy in learning and understanding mathematical concepts. For example, Electronic Spreadsheet was intended for business use but educators saw this as a good tool in teaching Financial Mathematics. Chong, Puteh, & Goh (2013) mentioned that the intended users of Spreadsheets, which were teachers and students, must have a perception that it is useful in the learning process, and the ease of using the tool will make them willing to use it when needed. Results of their study show that 99% of the respondents think that using the Spreadsheet in learning Financial Mathematics is easier compared to the traditional approach.

A study conducted by Zogheib, Rabaa'i, Zogheib, & Elsaheli (2015) dealt with the acceptance of students in using MyMathLab in learning mathematics. MyMathLab is an online mathematics classroom with a specific online course intended for different levels like college, high school, and middle classes. It is a useful platform for the teaching and learning process because of its user-friendly features. User satisfaction as one of the variables explored in the study played an important role in the perceived ease of use. Empirical results revealed that when the students are satisfied with MyMathLab, they find it easier to navigate through it, making them more skilful about the tool (Zogheib et al., 2015).

In the study of Elkaseh, Wong, & Fung (2016) in Libyan Higher Education, social networking media is being utilized in the e-learning sense. They inquired in the perceived usefulness and ease of use of the social networking media as it was integrated in the students' education. Significant results suggest that when the social networking media is easy to use, individuals will view it as a useful tool which will also influence their intention to embrace the e-learning technology (Elkaseh et al., 2016).

E-portfolios are ICT tools that allow students to store, access, update, and present information as evidence of their learning (Chau & Cheng, 2010). Shroff, Deneen, & Ng (2011) analyzed students' usage of e-portfolio through the lens of the TAM. They further proved the relationship of PEOU and PU through the results of their study concluding that the effortlessness of the e-portfolio contributes to its usefulness. The influence of PEOU to PU was also verified in the study *Exploring students' acceptance of e-learning using Technology Acceptance Model in Jordanian universities* (Al-Adwan et al., n.d.). The researchers posit that feelings towards the ease of use of a technology are associated by the sustained utilization of a technology thus the perceived usefulness will be affected.

The reviewed literatures showed the students' perception on mathematics and statistics technological tools based on their ease of use and usefulness. There were several ICTs pertaining to mathematics in general mentioned above but there was a dearth in literature in terms of the ease of use and usefulness of tools in statistics education.

Students' Attitude on Technology

Technology has provided many exciting ways for students to enjoy and facilitate learning. In the original Technology Acceptance Model, attitude is influenced by the two primary beliefs namely perceived usefulness and perceived ease of use (Davis, 1898 as cited by Elkaseh et al., 2016). Student's attitude towards the technology is known to have an impact in their learning (Barkatsas, 2016). In mathematics, the students' attitude towards learning with technology and their positive behavioral engagement promotes effective learning (Reed, Drijvers, & Kirschner, 2010). Al-emran, Elsherif, & Shaalan (2016) noted that attitude is important in identifying user's readiness for the technology. They also stressed that attitude can be a basis in recognizing the strengths and weaknesses to further improve the development of the technology infrastructure.

Using computer in statistics class imposed a positive role in lowering the anxiety of students (Brezavšček et al., 2014). Several computer softwares like SPSS are being utilized in aiding students to understand statistical concepts. The study *Extended Technology Acceptance Model for SPSS Acceptance among Slovenian Students of Social Sciences* (Brezavšček et al., 2014) explored on some external variables that affect students attitude towards the statistical software SPSS. Results revealed that the explored variables (SPSS Self-Efficacy, Computer Attitude, Statistics Anxiety, Statistics Learning Self-Efficacy, Statistics Learning Value, and Satisfaction with Achievement) are potential areas to promote positive attitudes towards statistics through SPSS. An encouraging attitude towards the mathematical computer tools can aide students in overcoming their initial difficulties in mathematics which will translate to an effective behavior (Reed et al., 2010).

Attitude in learning with technology is often related to students' achievement. This is affirmed by Eyyam & Yaratan (2014)'s study stressing that as students expressed positive attitude towards integration of educational technologies in classrooms, their class performance would also progress. This can be interpreted that low levels of mathematical achievement are attributed by negative attitude towards learning mathematics while positive attitude, along with mathematics confidence and affective engagement, may result to high levels of mathematical achievement. However, the overall result of the meta-analysis on the effectiveness of educational technology to student's achievement in mathematics of Cheung, A. & Slavin (2011) suggests that technologies can aide students in their learning but continuous development of these tools are needed to fully channel student achievement.

In a study with college students in United Arab Emirates, the researchers identified creative technologies such as games to strengthen the students' attitude in learning mathematics (Afari, Aldridge, Fraser, & Khine, 2013). Further, they stressed that these kinds of engaging pedagogies shall be employed to classrooms to improve the students' perception and attitude towards mathematics.

The attitude of engineering students in Libya towards the technology e-learning was tested by Rhema & Miliszewska (2014) citing the demographic profile and computer experience as influencer of attitude. Significant results express that the attitude of the students towards e-learning was greatly determined by their level of access to the technology (Rhema & Miliszewska, 2014). Meaning, the more they are exposed with a certain technology, the more that they will have a positive outlook towards it. On the contrary, learners' positive attitude towards using augmented reality in education will fade the more that they use it according to the study *Evaluation of Learners' Attitude towards Learning in ARIES Augmented Reality Environments* (Wojciechowski & Cellary, 2013). Because of this, the challenge lies in making the technology more interesting for younger generation.

It was also perceived that teachers' attitude and competence on learning with ICT influence that of students. Teachers' belief towards the utilization of technology can affect the actual usage of it in the classrooms (Incantalupo, Treagust, & Koul, 2014). In Nigeria, teachers are not competent in using technology in general because they lack facilities and training towards it. Mudasiru, Y y Modupe (2011) explored on the attitude and competence of students taking education to provide insight on the attitude and competence of the future teachers. Results revealed that students have positive attitude towards ICT, which was believed to be a major predictor of future use.

The Technology Acceptance Model, adapted from the Theory of Reasoned Action, explains the user acceptance behavior of technology (Surendran, 2012). Behavior, as the actual usage of a technology is influenced by the technology's perceived ease of use, perceived usefulness, and user's attitude towards the technology. Students learning mathematics, specifically the course statistics may use such technologies to help them with it (Brezavšček et al., 2014). However, their actual usage or behavior depends largely to different factors including their attitude.

Theoretical Framework

Technology Acceptance Model of Davis is a theoretical model that is used to rationalize the acceptance of new technologies and systems. It is a modification of the Theory of Reasoned Action (TRA) but is specifically intended for the users' acceptance of information systems (Davis as cited by Zogheib, Rabaa'i, Zogheib, & Elsaheli (2015)). It explains how a user accept a technology depending of the perceived usefulness and external variables that affects their perception then engage in the actual usage (Holden & Rada, 2011).

Technology Acceptance Model posits that the user's acceptance or utilization of IT advancements is influenced by his belief on its usefulness and ease of use. Perceived usefulness (PU) refers to an individual's belief that his job performance will increase with the help of the technology (Davis, Bagozzi, & Warshaw (1989) as cited by (Alharbi & Drew, 2014). On the other hand, perceived ease of use (PEOU) is the extent that the user finds the technology free from effort (Mouakket, 2010). According to TAM, these two variables are primary factors that influence a user's attitude or his outlook towards the technology. Further, attitude affects the user's behavioral intentions or his willingness to which will lead to the engagement in the behavior or the actual use of a given technology (Nair & Mukunda Das, 2012). Some TAM studies include external factors, which are perceived to have significant effect towards the PU and PEOU of the users.

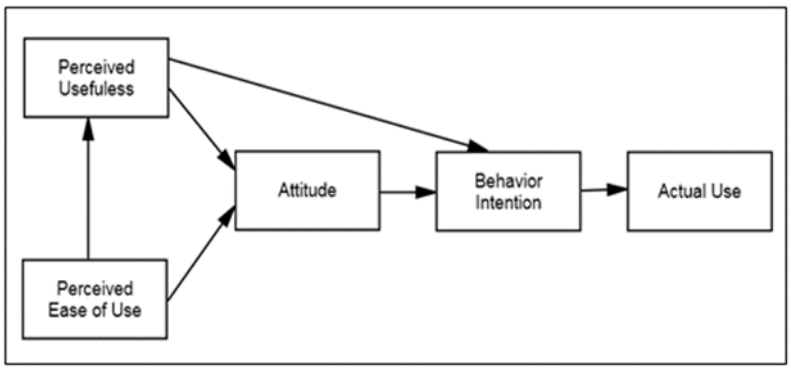

Figure 1. Technology Acceptance Model (Davis, 1989)

As an application to this study, the researcher was guided by the concepts of the Technology Acceptance Model in determining the students' acceptance of the computer software JASP in learning statistics. It is an appropriate underpinning of this study as it is concerned with explaining how the students perceived the software in terms of its usability and ease which may affect their attitude that is a determinant of actual use. It is also an opportunity to evaluate why the software may be acceptable or unacceptable, and then pursue improvements of the system.

Objectives of the Study

This study explored on the perceived ease of use, perceived usefulness, and attitude towards Jeffrey's Amazing Statistics Program (JASP) among students of a private HEI in Laguna, Region IV-A. Specifically, it aimed to assess the students' perceived ease of use, perceived usefulness, and attitude towards the JASP software. It also described the significant relationships between the explored variables.

METHODOLOGY

Descriptive-correlational research design was utilized in this study. The respondents of the study are college students in who have taken the Mathematics in the Modern World or Statistics courses with the application of JASP software. The researcher used the g-power software to determine the sample size of 134 students. The parameters for this analysis are effect size which is 0.30, alpha error of 0.05, and power of 0.95. Stratified random sampling was used to disseminate the number of respondents per department.

The researcher used a survey questionnaire for collecting the needed primary data. The instrument is divided into three (3) parts. The first part was a 7-item Likert Scale that dealt with the students' perceived ease of use of JASP while the second part was a 6-item Likert Scale that covered the students' perceived usefulness of JASP. Both Likert Scales were adapted from (Alharbi & Drew, 2014). The third part inquired on the attitude of the students toward JASP software. It was a 6-item Likert Scale adapted from the study of Fogarty, Cretchley, Harman, & Ellerton (2001). The instrument underwent face validity through experts in education and research and sought validation from a statistician to assure that the questionnaire items are measurable.

The researcher gathered 30 respondents to test the reliability of the instrument with a Cronbach's alpha value is .911, which is within the accepted range of .7 to .9 and interpreted as excellent. This also means that the instrument used is consistent and reliable.

Weighted mean was used to determine the perceived ease of use, perceived usefulness, and attitude of students towards JASP software. Spearman rho was utilized to determine if there is a significant relationship between the following variables: perceived usefulness and perceived ease of use of JASP; perceived usefulness of JASP and attitude of students towards JASP; and perceived ease of use of JASP and attitude of the students towards JASP.

RESULTS AND DISCUSSIONS

Perceived Ease of Use of JASP

Table 1 presents the students' perceived ease of use of JASP software. They strongly agreed that it would be easy for them to become skillful at using the JASP software, gaining the highest weighted mean of 3.55. They also found the software flexible (WM=3.48) and easy to operate (WM=3.48).

The overall average of the indicators of the JASP's perceived ease of use of a weighted mean of 3.47 interpreted as Agree which may suggest that the students show confidence in interacting with the software because it is user-friendly and trouble-free. This perception of the student towards JASP may positively influence their usage of the software because their feelings towards a technology's ease of use are associated with their continuous utilization (Al-Adwan et al., n.d.). Further, there is a tendency that they would prefer JASP over other professional statistical software that require advanced knowledge on statistics which most students do not possess (W Xu et al., n.d.).

Table 1. Students' perceived ease of use towards JASP

	Weighted Mean	Verbal Interpretation
I feel that it would be easy to become skillful at using JASP.	3.55	Strongly Agree
Learning to operate JASP would be easy for me.	3.48	Agree
I would find JASP to be flexible to interact with.	3.48	Agree
It would be easy for me to get JASP to do what I want to do in Statistics course.	3.47	Agree
I feel that I have an ability to determine JASP's ease of use.	3.46	Agree
I feel that my interaction with JASP would be clear and understandable.	3.45	Agree
I feel that using JASP would be easy for me.	3.40	Agree
Composite mean	3.47	Agree

Legend: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Agree; 3.50-4.00 Strongly Agree

Perceived Usefulness of JASP

Table 2 illustrates the students' perceived usefulness towards JASP software. It can be noted that generally, the students strongly agreed that the JASP software is useful to their studies, especially in statistics courses. The indicator with the highest weighted mean (WM=3.81) states that JASP software is helpful in the students' homework and research. The students also strongly agreed that using the software might bring advantage to their class performance and productivity. The results indicate that the students consider JASP software as a practical tool in their statistics courses. Consistent to prior research, a user will view a certain technology as useful especially if it benefits him with his tasks (Mouakket, 2010). Students would naturally accept a technology if it provides assistance with his education (Bakar et al., 2010).

Table 2. Students' perceived usefulness towards JASP

	Weighted Mean	Verbal Interpretation
Using JASP is beneficial to my homework and research.	3.81	Strongly Agree
I would find JASP useful in my statistics course.	3.74	Strongly Agree
Using JASP in learning Statistics would enable me to accomplish tasks more quickly.	3.72	Strongly Agree
Using JASP would improve my class performance.	3.57	Strongly Agree
Using JASP in learning Statistics would increase my productivity.	3.56	Strongly Agree
Using JASP would enhance my effectiveness in my class.	3.52	Strongly Agree
Composite mean	3.65	Strongly Agree

Legend: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Agree; 3.50-4.00 Strongly Agree

Attitude of the Students towards JASP

The results on the attitude of the students of private HEI towards JASP can be seen in Table 3. The respondents attest that JASP allows them to make more realistic applications while learning statistics (WM=3.75). They also expressed desire in getting better at using JASP to aide them in their statistics

course (WM=3.69). The positive attitude of the students towards JASP is an indicator of their positive behavior towards it (Reed et al., 2010). The respective statements further support the benefits that JASP can bring in terms of learning statistics. While the students agreed that they prefer long method, it got the lowest weighted mean of 2.87 interpreted only as agree.

Table 3. Students' attitude towards JASP

	Weighted Mean	Verbal Interpretation
I like using JASP in learning statistics makes it easier for me to do applications that are more realistic.	3.75	Strongly Agree
I want to be better at using JASP to help me with learning statistics.	3.69	Strongly Agree
I like the idea of exploring courses through JASP.	3.59	Strongly Agree
I think using JASP is too new and strange to make it worthwhile for learning.	3.28	Agree
I think using JASP takes too much time in learning my statistics course.	2.95	Agree
I prefer long method computation in classroom without using JASP.	2.87	Agree
Composite mean	3.36	Agree

Legend: 1.00-1.49 Strongly Disagree; 1.50-2.49 Disagree; 2.50-3.49 Agree; 3.50-4.00 Strongly Agree

This may suggest that the students are still open with the traditional way of learning statistics. Overall, the students agreed in the statements concerning their attitude on JASP with an average of 3.36. As Incantalupo, Treagust, & Koul (2014) believed, students' attitude towards a technology is favorable especially when integrated to their way of learning.

Relationship between the Perceived Ease of Use and Perceived Usefulness of JASP

As reflected in Table 4, there was a moderate correlation between the perceived ease of use and perceived usefulness of JASP as revealed by a rho value of 0.450. The relationship was significant since the probability value of 0.000 was less than the 0.01 significance level.

Table 4. Relationship between students' PEOU and PU towards JASP

Indicator	rho value	p-value	Interpretation
Perceived Ease of Use vs. Perceived Usefulness of JASP among the Students	0.450	0.000*	Significant

This means that the more positive their perception of the ease of use, the more positive their perception of usefulness of JASP. If the students find JASP as a trouble-free learning tool, they would perceive it as useful. Studies have seen the relationship of these two variables revealing that the ease of using a certain technology is a determinant of its usefulness to a user (Bueno & Salmeron as cited by Mouakket, 2010). Generally, technology users will employ technology with their activities if it is simple, easy to use, and useful (Al-Adwan et al., n.d.).

Relationship between the Perceived Ease of Use and Attitude towards JASP

As shown in Table 5, there was a moderate correlation between the perceived ease of use and students' attitude towards JASP as reflected by a rho value of 0.527. The probability value of 0.000 was less than the significance level of 0.05, which means that the relationship was significant.

Table 5. Relationship between students' PEOU and attitude towards JASP

Indicator	rho value	p-value	Interpretation
Perceived Ease of Use vs. Students' Attitude towards JASP	0.527	0.000*	Significant

The result implies that the more positive their perception of the ease of use the more favorable is their attitude towards JASP. Shroff, Deneen, & Ng (2011) examined students' attitude in using electronic portfolio system, which revealed that perceived ease of use had significant correlation with the attitude towards the electronic portfolio. This is also consistent with David, and Hu et al, as cited by Shroff et al.(2011). It can be concluded that since the students do not experience trouble with using the JASP software, they would possess a favorable attitude towards the technology. On the other hand, if they would experience hassle and complexity with technology, they might be discouraged to utilize the technology with their learning. Students often encounter difficulties when dealing with professional statistical software that is why the ease of using new statistical tools is a consideration for them.

Relationship between the Perceived Usefulness and Attitude towards JASP

As gleaned in Table 6, there was a moderate correlation (r=0.539) between the perceived usefulness and students' attitude towards JASP. The relationship was significant since the probability value of 0.000 was less than the 0.05 significance level.

This means that the more positive the student's perception of the usefulness of JASP the more favorable is their attitude towards JASP. Based on the result, it can be implied that when the students find JASP, software as a tool that is useful to them, they will have positive feelings or attitude towards it. This finding is parallel to previous studies supporting the relationship of perceived usefulness and attitude (Erasmus, Rothmann, & Van Eeden, 2015; Zogheib et al., 2015).

Table 6. Relationship between students' PU and attitude towards JASP

Indicator	rho value	p-value	Interpretation
Perceived Usefulness vs. Students' Attitude towards JASP	0.539	0.000	Significant

Both the perceived ease of use and perceived usefulness are moderately correlated to the students' attitudes towards JASP. However, it can be noted that perceived usefulness has a greater rho value (r=0.539) than perceived ease of use (r=0.527). This may posit that the usefulness of the JASP software influences the students' attitude towards JASP more that its ease of use. This result is mirrored to the findings of Davis as cited by Elkaseh, Wong, & Fung(2016) which revealed that both PEOU and PU of a technology are determinants of attitude but perceived usefulness is 50% stronger factor that affects a user's attitude.

CONCLUSIONS

This study assessed the students' perceived ease of use, perceived usefulness, and attitude towards JASP. Based on the results, the students are more likely to accept and utilize the JASP software as they find it easy to use and trouble-free. JASP software was also perceived useful in their statistics classes, which might lead for a positive acceptance of the technology. Students also expressed favorable attitude towards JASP with a desire at getting better at using it. The perceived usefulness of the students towards JASP affects their attitude towards it, which means that the more positive the students perceived the usefulness of JASP, the more they would feel favorable towards it. The JASP software is easy to use and useful with learning statistics, which will influence the students' positive attitude that may translate to their utilization and technology acceptance.

Recommendations

In the light of the findings and conclusions, the researcher recommends considering the integration of JASP software in their statistics courses as the students perceived it as a user-friendly tool. Other professional statistical software may be difficult for the students while JASP provides easy interface. The student's positive attitude with a desire to get better in using it may be utilized as a foundation in introducing the JASP software to them. Based on the Technology Acceptance Model and literatures reviewed, positive attitude may lead to continuous utilization.

The developers of JASP software may work more on making the tool more user-friendly so that the students will consider it as a useful tool in learning statistics. Its easiness will also give them a positive attitude towards JASP.

For future researches, the researcher recommends that external variables may be added such as demographic profile and other factors that may affect the students' perceived ease of use, perceived usefulness and attitude towards JASP software to better understand the way students perceive the software. This study may also be extended until the actual use of JASP to further understand the student's behavior towards JASP because their acceptance is not only based on their perception and attitude but also with their utilization.

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